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Transmittal

CS Transmittal No. 2151

To:	Jeff Davis FTA 201 Mission Street, Suite 1650 San Francisco, CA 94105	**From:**	John Funghi
		Project No./Contract No.:	M544.1, CS-149
		Task No./Title:	1-6.01 Interagency Coordination
		Project Phase:	Construction
Date:	January 15, 2013	**Subject:**	Health and Safety Plan – Construction Safety Standards
Reference:			

Sent via:	☐ *mail*	☐ *overnight*	☐ *messenger*	☐ *hand-delivered*
	☐ *fax – **No:***		☒ *email – **Address:***	jeffrey.s.davis@dot.gov

The following:		***For your:***	***Due date:***
☐ *copy of letter/memo*	☐ *estimate*	☒ *information/use*	N/A
☐ *minutes/agenda*	☐ *schedule*	☐ *action*	
☐ *report*	☐ *deliverable*	☐ *review/comment*	
☐ *presentation*	☐ *review comment form*	☐ *response to comment*	
☐ *cd / dvd*	☐ *no review comment form*	☐ *concurrence*	
☐ *specifications*	☐ *review comments*	☐ *incorporation of comments*	
☐ *half-size drawings*	☐ *response to comments*	☐ *verification*	
☐ *full-size drawings*	☐ *concurrence with response*	☐ *signature*	
☐ *sketches/maps/layouts*	☐ *verification of incorporation*	☐ *acceptance/approval*	
☐ *reference material*	☐ *acceptance/approval*	☐ *other* _____	
☒ *other* Staffing Plan		_____	

Item No.	***Copies***	***Description***	***Rev. No.***	***Date***
1	1	Health and Safety Plan – Construction Safety Standards	3	06/27/12

If enclosures are not as noted, kindly notify us at once.

Remarks:

Attached please find the Central Subway Health and Safety Plan - Construction Safety Standards.

John Funghi
Program Director

JF:smk

cc: David Kuehn, STV (w/attachments) david.kuehn@stvinc.com
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Eric Stassevitch, CSP (w/attachments)
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CS File No. M544.1.5.0291

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Plan

Contract CS-149

Task 1-10.07

Health and Safety

Construction Safety Standards

Revision 3

June 27, 2012

Prepared for:

SFMTA

CITY AND COUNTY OF SAN FRANCISCO
MUNICIPAL TRANSPORTATION AGENCY
821 Howard Street
San Francisco, CA 94103

Prepared by:

C S P Central Subway Partnership

creativity stewardship performance

central T subway

Plan
Contract CS-149
Task 1-10.07
Health and Safety
Construction Safety Standards
Revision 3
June 27, 2012

Revised by: _____ Date: 6-27-2012

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Reviewed by: _____ Date: 6-28-2012

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Accepted by: _____ Date: 7-24-12

John Funghi
SFMTA Senior Program Manager

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DEFINITIONS

The following definitions titles and acronyms may not reflect the actual definitions, titles and acronyms in use by all entities on this project and do not have any force or effect beyond their use in the Construction Safety Standards. Due to such differences in nomenclature among Owners and Contractors, the following are used throughout the Construction Safety Standards to establish the functional framework for the Safety Program.

Definitions

Authorized Person: (In reference to an employee's assignment) Selected by the employer for the purpose of performing a specific type of duty and/or duties.

Competent Person: An individual who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate risks or prevent worker exposures to hazardous conditions.

Contractor: The entity with which the Owner enters into a contract. The entity is also referred to as the controlling entity for activities or General Contractor.

Contractor Safety Manager (CSM): Contractor shall have a Contractor Safety Manager assigned to the project full-time to carry out the duties as described in this document at all times during all construction activities. The Contractor Safety Manager shall have no other duties other than safety (dedicated) and shall be present during all construction activities. Multiple shifts will require multiple CSM to cover all construction activities. The CSM must be a client-approved position.

Contractor Safety Representative (CSR): Designated Contractor employee assigned safety responsibilities for shift work and distinct work locations as required. The Contractor can delegate the CSR duties to an on-site Field Supervisor. CSR responsibilities cannot be delegated to an office or staff employee.

Subcontractor Safety Manager (SSM): A dedicated full-time Subcontractor Employee assigned safety responsibilities for the project for subcontractors having **30 or more employees**. The SSM has the same responsibilities for safety for the Subcontractors that the CSM has for the Contractor.

Subcontractor Safety Representative (SSR): At a minimum, each subcontractor is required to have a designated employee assigned safety responsibilities representing the subcontractor's work. Additional SSR personnel shall cover shift work and distinct work locations as required. The Subcontractor can delegate the SSR duties to an on-site Field Supervisor. SSR responsibilities cannot be delegated to an office or staff employee.

Employee: Person employed by an Employer as defined by this section.

Employer: A firm or entity that has employees working on site. The term Employer includes the Contractor and Subcontractors of all tiers. For the purposes of the Safety Standards, vendors, suppliers, and service providers on the project for the furtherance of the project are covered by this definition and are subject to the provisions of the Safety Standards.

OSHA: OSHA as used in the context of these Safety Standards refers to the State or Federal agency with jurisdiction over workplace occupational safety and health at the project site.

Owner: San Francisco Municipal Transportation Agency (SFMTA). The entity is with which this project is being performed.

Owner's Authorized Representative (OAR): The Owner's Employee or agent with overall responsibility for the project. Commonly this person is referred to as Engineer, Principal Engineer or Project Manager in specific contract documents.

Owner Safety Manager (OSM): SFMTA professional safety representative or agent with overall responsibility for the implementation of the Owner's Safety Program, including the Construction Safety Standards.

Qualified Person, Attendant or Operator: A person designated by the employer who by possession of a recognized degree, certificate, or of professional standing, or who, by extensive knowledge, training and experience, has successfully demonstrated his/her ability to solve or resolve problems relating to the subject matter, the work, or the project.

Site-Specific Safety Program (SSSP): The Contractor's Site-Specific Safety Program prepared in accordance with the requirements of this document and the Contract.

SFMTA: San Francisco Municipal Transportation Agency.

SFMTA Management Team: The Team of owner employees or agents who are representing SFMTA and make decisions which influence the program or any or all projects. These personnel include SFMTA project planners/managers, risk managers, construction project management personnel and ancillary professionals such as inspectors, quality managers, engineers, utility managers, etc.

Subcontractor: Firm or other entity awarded work by a Contractor on a particular construction project. Subcontractor as used herein shall apply to all tiers of Subcontractors, as well as vendors and service providers performing work for the benefit of the Contractor. For the purposes of the Safety Standards, vendors, suppliers, and service providers on the project for the furtherance of the project are covered by this definition and are subject to the provisions of the Safety Standards.

Subcontractor's Project Manager (SPM): The senior on-site management person for the Subcontractor that is responsible for the execution of the contract, including compliance with the Construction Safety Standards. In some cases, the actual on-site representative may be a Superintendent or a Foreman. In such cases, this is the applicable person when the SPM is referenced. The SPM is responsible for and accountable for the ongoing implementation and enforcement of the Subcontractor's Site-Specific Safety Program.

Subcontractor's Safety Manager (SSM): Contractor Employee dedicated to the responsibility of implementing the Contractor's Safety Program and their Injury and Illness Prevention Program, including ongoing identification and correction of hazards. This is a full-time safety professional assigned to the oversee subcontractor activities when the subcontractor has 30 or more workers in the field.

Subcontractor Safety Representative (SSR): Subcontractor Employee assigned the responsibility of implementing the Contractor's Safety Program and their Injury and Illness Prevention Program, including ongoing identification and correction of hazards.

Acronyms

Following is a list of acronyms used in this document.

ACM	Asbestos Containing Material
ACSM	Alternate Contractor's Safety Manager
ACSR	Alternate Contractor's Safety Representative
AHA	Activity Hazard Analysis
ANSI	American National Standards Institute
CARB	California Airborne Resources
CDL	Commercial Driver's License
CDPH	California Department of Public Health
CPM	Contractor's Project Manager
CPR	Cardio Pulmonary Resuscitation
CPM	Contractor's Project Manager
CSP	Central Subway Project
CSM	Contractor's Safety Manager
CSR	Contractor's Safety Representative
EPA	Environmental Protection Agency
HEPA	High Efficiency Particulate Air
JHA	Job Hazard Analysis
JSSA	Job Site Safety Analysis
LBP	Lead Based Paint
LEL	Lower Explosive Limit
MSDS	Material Safety Data Sheet
MSHA	Mine Safety and Health Administration
MUTCD	Manual on Uniform Traffic Control Devices
NFPA	National Fire Protection Association
NOTAM	Notice to Airmen
OSHA	OSHA and/or State OSHA (refer to context)
OSM	Owner Safety Manager
PACM	Presumed Asbestos Containing Material
PPE	Personal Protective Equipment
RPM	Revolutions Per Minute
SPM	Subcontractor's Project Manager
SSM	Subcontractor Safety Manager
SSR	Subcontractor's Safety Representative
SSSP	Site-Specific Safety Program
UL	Underwriters' Laboratories
USDOT	United States Department of Transportation
WATCH	Work Area Traffic Control Handbook

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1. INTRODUCTION AND BASIC ELEMENTS

1.1 SAFETY PHILOSOPHY

The San Francisco Municipal Transportation Agency (SFMTA) is committed to maintaining public safety and a safe and productive working environment for all its employees, contractors and others who do business with the Agency. We are committed to the safety and welfare of our Central Subway Project workers, the surrounding community, and the environment. The SFMTA safety goal is to be incident free on all construction associated with the Central Subway Project (referred to as the "Project").

Safety is viewed as a critical key component of the construction process, the other key components being production and quality.

Contractors are charged with the ultimate responsibility for conducting their operations in a manner that shall ensure safe working conditions at all times for all employees, and for the protection of the public and all others who may come in contact with, or be exposed to the Project.

The Contractor shall be responsible for initiating, maintaining, supervising, and enforcing all safety precautions and programs in connection with the performance of the contract. Their employees and subcontractors share in that responsibility as well. All project workers are expected to work safely and to contribute to the safety of others. In fact, this is an important condition of employment for everyone working on the Project.

Compliance with the requirements of these Standards shall not relieve any Contractor or Subcontractor of the obligations assumed by the Contractor or Subcontractor under the Standards of the Contract with the Owner or as required by law.

Incident prevention contributes to the Contractor's well-being by avoiding injury or illness to the Contractor and its' Subcontractor's employees, improving productivity, contributing to quality, and reducing costs. The community also benefits directly from incident prevention efforts when potential damage to the environment or members of the community is effectively managed.

To say that all incidents can be prevented is a realistic goal, not just a theoretical objective. It is achievable, in part by eliminating sources of hazards and unsafe acts, and also by incorporating measures such as pre-planning, safety controls, proper training, safe operating procedures and personal protective equipment to meet this goal.

In order for all Central Subway Project workers to understand this Safety Philosophy and to meet its expectations, both general and specific training is required. Training is the responsibility of every level of supervision for each employer. Safety training and the prevention of incidents are logical and appropriate parts of how we expect the operations of each Contractor and Subcontractor to be conducted.

Safety shall be an integral part of the work. Full participation, cooperation and support by all parties are required to ensure the safety and health of all persons and protection of property involved in all aspects of the Project.

1.2 SCOPE

This Health/Safety Plan and Construction Safety Standards is intended to be used and followed by SFMTA employees, Consultants, General Contractors, Sub-contractors or anyone doing business on the SFMTA Central Subway Project. Preference will be given to any Safety and Health plan, regulations, requirements, or standards which are more stringent.

1.3 PROGRAM OBJECTIVES

These Construction Safety Standards establish the **minimum** standards the Contractor's Site-Specific Safety Program.

These Construction Safety Standards should not be considered all inclusive.

The Construction Safety Standards contained in this document were developed as **minimum** requirements to assist the Employer in the elimination or reduction of hazards and risk associated with the construction project. These guidelines also assist the employer's efforts to prevent incidents, ensure the safety of the general public, reduce employee injuries, prevent damage to property, and promote efficiency, and effect savings by reduction of unplanned business interruption.

SFMTA and/or its authorized representatives will neither assume nor relieve any Employer of their direct responsibility for the safety and health of their employees, the protection of visitors and the public, or the protection of equipment and property.

SFMTA will actively participate in making these standards effective by monitoring the efforts of the Contractor and Subcontractors in their performing the following tasks:

a) Providing a safe and healthy environment for site Employees during construction. Examples of this task include:
   - New hire safety orientations.
   - Toolbox/tailgate safety meetings.
   - Safety training, i.e., hazard communication, trenching shoring, confined space, lock-out/tag-out, respiratory protection and respirator fit testing, etc.
   - Mandatory personal protective equipment (PPE) programs.
   - Injury reporting and record keeping maintaining up-to-date incident experience and trend analysis.
   - Using Incident investigation information to correct deficiencies and eliminate additional losses.
   - Implementing appropriate and effective Safety Management Systems
b) Using safety planning, such as Job Site Safety Analysis and Pre-Planning, as a tool to eliminate workplace injuries and property damage.
c) Conducting safety audits/inspections to *identify, prioritize, and correct* non-compliance conditions.
d) Administering a Subcontractor Prequalification Program.
e) Protecting public and private property adjacent to all construction site work zones.
f) Informing the SFMTA Owners Safety Manager and Project Management of any visit from a regulatory agency such as OSHA, EPA or controlling air resources and water resources boards.
g) Educating and training Employees by implementing their respective safety programs

1.4 PROJECT EXECUTIVE SAFETY OVERSIGHT COMMITTEE

The project shall have an Executive Safety Oversight Committee to oversee and monitor project safety at an executive level. This committee will, at a minimum, be comprised of executive representatives from SFMTA Risk Management, SFMTA Owner Safety Manager(s), the Construction Project Managers, and Project Management Team members and Safety Managers from each Contractor of each project. Others may be added to this Committee or requested to attend meetings of this Committee at the discretion of the Committee leadership. The Executive Safety Oversight Committee will meet as needed

1.5 CONFLICT BETWEEN CODES AND SAFETY STANDARDS

a) In the case of conflict between codes, reference standards, drawings and other Contract Documents, the most stringent requirements shall govern.
b) Conflicts shall be brought to the attention of SFMTA project management. SFMTA reserves the right to issue a final determination for conflicts.
c) The Contractor shall implement the most stringent requirements.

1.6 NON- COMPLIANCE

If the Owner's Representative becomes aware of any non-compliance with any applicable safety standards, orders, codes or regulation, the Owner's Representative or his/her designee shall:

a) Notify the Contractor of the non-compliance and of the corrective action required. This notice, when delivered to the Contractor or the Contractor's representative at the Project Site, shall be deemed sufficient notice of the non-compliance to immediately implement corrective action.
b) Exercise the right to issue a suspend work order suspending all or part of the Work if the Contractor fails or refuses to take corrective action within the time specified in the notice. The order shall remain in effect until satisfactory corrective action has been taken.
c) Deny any claim or request from the Contractor for equitable adjustment for additional time or money on any Suspend Work Order issued under these safety hazard circumstances.
d) Require the immediate removal of any employee or equipment from the Project Site deemed by the Owner's Representative to be unsafe.
e) The Contractor's Competent Person or other personnel shall be replaced by the Contractor at the direction of the Owner's Authorized Representative for their non-performance of his or her safety/security duties at no additional cost to the Contract.
f) If the Contractor fails to correct any safety deficiency or property damage within the time specified on a notice of non-compliance or suspension of work order issued, the Owner's Representative shall have the right to reduce or decline progress payments in accordance with the Specifications.
g) Willful or repeated non-compliance may result in an employee or contractor being removed for failing to perform work properly as per the Specifications.
h) No corrective order provided by the Owner's Representative is intended to relieve the Contractor of its obligations, under any applicable law, to provide a safe workplace and to comply with safety regulations, and the Contractor is obligated to provide whatever additional measures may be required to meet the needs of the existing circumstances.

1.7 GENERAL EMERGENCY PROCEDURES

1.7.1 Job Site Emergencies (Fire, Incidents and Medical Emergencies)

a) All job site emergencies must be reported immediately to the Contractor (if applicable), the SFMTA Project Owner Safety Manager (OSM) and SFMTA Project Management and/or Authorized Representative.
b) Job Site Emergency Telephone Numbers shall be posted on the job site bulletin board.
c) A local street map clearly identifying the project and active entrances shall be maintained and posted on the job site bulletin board by the Emergency Telephone Numbers.
d) All supervisors and at least one crew member on each crew shall have a valid certificate in first-aid training from the American Red Cross, Mine Safety and Health Administration or equivalent training program that can be verified by documentary evidence.
e) In the event that there are no hard-wire ("land line") telephones available at the project site, the Employer shall identify and post an alternate number (in addition to 911) to be used to contact emergency service providers via cell phone. This is necessary, as dialing 911 on a cell phone does not always provide a direct connection to local Emergency Services.

1.7.2 Fire

a) Call 911 or the Local Fire Department/Agency
    - At minimum, provide the location, floor and area of the incident
b) In case of fire in any building or structure:
    - Evacuate the immediate area, and
    - Activate the fire alarm system (if available), and
    - Call the Fire Department.
c) For fire outside of buildings or structures:
    - Evacuate the immediate area, and
    - Call the Fire Department.
d) Call the OSM, SFMTA Project Management and/or Authorized Representative.

1.7.3 Medical Emergency

a) Call 911 or the local Emergency Medical Services.
b) Call or report the job site emergency immediately to the Contractor.
c) Render first aid promptly to the injured Employee.
d) The preferred provider for serious traumatic injuries is: Consult the Job Site Posting Notice
e) The designated provider for non-life threatening or minor injuries requiring medical treatment is: Consult the Job Site Posting Notice
f) Call the OSM, SFMTA Project Management and/or Authorized Representative.

1.8 PROJECT CONDUCT AND SITE SECURITY INFORMATION

1.8.1 Employee Conduct

a) All project workers must maintain professional behavior at all times. Horseplay, fighting, sexual harassment, possession or use of alcohol and/or unauthorized drugs, possession of firearms and gambling are not allowed and will result disciplinary action, up to and including immediate removal of the Employer and/or the Employee(s) from the site.

1.8.2 News Media and Contractor Conduct

a) Employers and Employees shall refer questions from news media personnel (radio, television, newspaper) to the Owner Authorized Representative.
b) Project incidents/incidents resulting in news media coverage (radio, television, newspaper) shall be immediately reported to the Owner Authorized Representative.

1.8.3 Construction Vehicle Parking

a) Park in authorized areas only. Do not block or obstruct intersections, fire lanes and fire hydrants, traffic lanes, driveways or parking lot entrances. Offending vehicles may be towed without notice at the vehicle owner's expense.
b) Personally-owned vehicles (POVs) are not permitted on the project except in authorized and designated parking areas. POVs discovered in the designated contractions zone are subject to vehicle towing at owner expense.

1.8.4 Identification

a) All workers' hard hats must display the Contractor's name and logo. The worker's name must appear as well.
b) The Contractor shall administer a project specific hard hat sticker program to identify workers that have successfully completed their project safety indoctrination training.
c) Contractor equipment and vehicles entering and/or working at the site must have the company name/identification clearly displayed on the vehicle. All vehicles not displaying this information will be considered POVs.

1.8.5 Assigned Work Area

a) Contractors and Subcontractors are confined to their assigned work areas.
b) Wandering through other contractor's work sites is strictly prohibited.

2. RESPONSIBILITIES

2.1 SAFETY RESPONSIBILITIES

2.1.1 Safety Responsibilities

The Contractor shall be responsible for initiating, maintaining, supervising, and enforcing all safety precautions and programs in connection with the performance of the Contract for the on-site safety of their Employees and Subcontractors performing work for the benefit of this project. This includes responsibilities for vendors, delivery and transportation services, and service providers at the project location.

Each Employer shall be responsible for initiating, maintaining, supervising, and enforcing all safety precautions and programs in connection with the performance of the contract for the safety of its Employees, its Subcontractors, the public, and the work site in general.

Each Employer shall comply with all applicable provisions of Federal, State, County and Local laws, ordinances, codes, and regulations affecting safety and health, including but not limited to the most stringent of the following:

a) Federal OSHA Standards (OSHA),
b) California Occupational Safety and Health Administration (CAL-OSHA)
c) State of California, Public Utilities Commission
d) Mine Safety and Health Administration (MSHA)
e) SFMTA Construction Safety Standards

2.2 CONTRACTOR'S RESPONSIBILITIES

a) The Contractor shall have access to all applicable OSHA regulations available for use and reference at the job site.
b) The Contactor is responsible for administering a Subcontractor prequalification program which includes criteria based on Experience Modification Rating (EMR), safety statistics from OSHA 300 logs and OSHA Inspection experience. No subcontractors will be permitted to bid or perform work that have an EMR of 1.15 or greater without specific approval by the Contractor which includes a comprehensive review of the program with adequate justification and a detailed corrective action plan submitted by the subcontractor and subsequent approval by the SMFTA Management Team.
c) The Contractor is responsible for holding a formal safety inspection of all work locations coordinated by the CSM or their Designated Safety Representative and led by the Contractor Project Manager with representatives from the trades at least weekly.
d) The Contractor will be responsible for designing and implementing a Site-Specific Safety Program and submitting to SFMTA Safety for review and approval.
    - The Program will be reviewed for inclusion of the requirements of the SFMTA Construction Safety Standards and applicable sections of the Project Specifications.
    - The approval of the Program will be based solely on the content of the Program relative to conformance with the Construction Safety Standards and Project Specifications. The Contractor retains responsibility for regulatory compliance, and means and methods employed to implement the contents of the Program.
    - Failure to attain approval of the Program prior to the scheduled commencement of contract work is not grounds for a time extension.
    - Upon approval of the Program for conformance to said requirements, the Contractor shall submit two copies of the Program signed by the high-ranking local official to the Owner Authorized Representative.
e) The Contractor scope shall include these Construction Safety Standards. This shall include all services required for the complete performance of the contract work in accordance with the requirements of the Construction Safety Standards.

f) All Contractor and Subcontractor Site Managers, Field Supervisors and Safety Personnel must have completed the OSHA 10-Hour Construction Outreach Training Program within the last 3 years.

g) All Contractor and Subcontractor Employees shall receive a project site safety orientation that at minimum reviews the Project Safety Rules and regulations, and applicable Emergency and Evacuation Plans prior to their start of work.

- The Contractor shall institute a project-specific hard hat sticker program to clearly identify project personnel who have successful participated in the safety orientation training.
- Vendors and visitors shall be provided with an orientation that is appropriate for their exposures during their time on site.
- The Contractor is to provide this orientation.

h) The Contractor shall conduct monthly (at minimum) Project Safety Meetings with their Subcontractors to properly coordinate the work within the trades and resolve matters related to safety and health and project work. Minutes shall be kept of each meeting, including topics covered and attendees.

- The Owner reserves the right to request additional Project Safety Meetings be conducted by the Contractor when requested by the Authorized Representative or OSM to address specific areas of concern.

i) The Contractor is responsible for assuring all Project employers conduct toolbox safety meetings with their employees at least once a calendar week. Records of these toolbox meetings are to be maintained and available for review by the Authorized Representative. Meeting minutes shall contain the following:

- Employee names in a legible format
- Identifier for each Employee
- Employer name
- Date of meeting
- Description of meeting topics
- Name(s) of person(s) conducting the meeting

j) The Contractor and Employer shall ensure that all personnel are properly trained and instructed for all jobs that require specific training and/or competency to meet all applicable OSHA regulations, state and federal law, and the requirements herein.

k) Each Contractor and Subcontractor (via the Contractor) shall submit to the Authorized Representative a list of (a) Competent Persons and Qualified Persons as applicable to the Employer's scope of work, and (b) First Aid / CPR trained personnel prior to starting work.

- Each list shall be clearly dated, and updated as required throughout the contract period. Each time the list is updated, a copy shall be provided to the Authorized Representative.

l) The Contractor shall ensure each Employer is responsible for handling, on a daily basis, rubbish and debris generated by its work. The contractor must keep the work place clean.

m) The Contractor is responsible for ensuring that abatement actions are taken on all non-compliant items on the Site Safety Inspection (Checklist Appendix K), either from regular site safety walks or issued to the Contractor from the OSM or his designee.

n) The Non-Compliance Abatement Report form (Appendix I) must be completed by the Contractor and returned to OSM and others are required by these Safety Standards.

o) The Contractor will cooperate in inspections by OSHA and other regulatory agencies.

p) The Contractor is responsible for assuring all affected workers (all subcontractors) involved in an incident are subject to drug and alcohol testing and have successfully been cleared (negative).

q) The Contractor is responsible for assuring all subcontractors adhere to the modified duty program.

r) The cited Employer(s) shall submit copies of all regulatory agency citation notices to the Contractor (if applicable), Authorized Representative.
   - The Contractor shall ensure that the cited Employer posts copies of all citations as required by OSHA or the applicable regulatory agency.

2.2.1 Site Specific Safety Program (SSSP0

a) The Contractor shall have an effective and written Site-Specific Safety Program in accordance with OSHA and SFMTA Program requirements. This document will be essentially equivalent to the City's Environmental Health and Safety Program (EHASP) as specified in the Contract Specifications outlined in Section 01 35 29.10. This Site-Specific Safety Program shall also include, but not be limited to, the following site-specific components as they apply to the Employer's work:
   - Safety and Health Policy Statement
   - Assignment of accountability and responsibilities for key personnel responsible for implementation of the Safety Program
   - Identification of Competent Persons and Qualified Persons
   - Scope of Work Evaluation
   - Hazard/Risk/Exposure Assessment
   - Control Measures / Activity Hazard Analysis
   - Three Week Look Ahead Planning
   - Procedures for effectively communicating safety and health matters to Employees
   - Safety Incentive Program / Safety Recognition Program
   - Progressive Disciplinary Action Program
   - Workplace Hazard Identification Inspection and Corrective Action Program
   - Safety Training Program (including provisions for Supervisory and Craft Employee training)
   - Project-specific Employee Safety Orientation Program
   - Provisions for maintaining orientation, training, inspection, corrective action and investigation records
   - Hazard Communication Program
     - To include Material Safety Data Sheets for all products at the site
   - Job Safety Analysis (Job Hazard Analysis) Program
   - Emergency Response and Evacuation Plan
   - Fire Prevention Program
   - Hot Work Program
   - Drug Free Workplace
   - Incident Investigation Program
   - Near Miss Incident Investigation Program
   - Fall Prevention Program
     - Training and rescue shall be addressed in the Fall Protection Program
   - Scaffold Safety
     - Scaffold Inspection, Scaffold Erector Training, and Scaffold User Training shall be addressed in the Scaffold Safety Program
   - Confined Space Entry Program
   - Lock-out/Tag-out / Control of Hazardous Energy Program
   - Excavation Safety Program
   - Site Logistics Plan

- Other written programs required by this and other contract documents or regulatory agencies
- List of Appendices

b) The SSSP must be submitted to the SFMTA OAR for review and approval at least two weeks prior to the initiation of construction activities.

2.3 SUBCONTRACTOR SAFETY RESPONSIBILITIES

a) Subcontractors are responsible for initiating, maintaining, supervising and enforcing the safety requirements outlined by Construction Safety Standards and the Contractor's Site-Specific Safety Program, even though the requirements may be above and beyond the Subcontractor's own safety policies and federal and state OSHA requirements.

b) All subcontractors must have a current Injury and Illness Prevention Program (IIPP) and Code of Safe Work Practices.

2.4 CONTRACTOR AND SUBCONTRACTOR SAFETY PERSONNEL

2.4.1 Definitions

2.4.1.1 Contractor Safety Manager (CSM):

Contractor shall have a Contractor Safety Manager assigned to the project full-time to carry out the duties as described in this document at all times during all construction activities. The Contractor Safety Manager shall have no other duties other than safety (dedicated) and shall be present during all construction activities. Multiple shifts will require multiple CSM to cover all construction activities. The CSM must be a client-approved position.

2.4.1.2 Contractor Safety Representative (CSR):

Designated Contractor employee assigned safety responsibilities for shift work and distinct work locations as required. The Contractor can delegate the CSR duties to an on-site Field Supervisor. CSR responsibilities cannot be delegated to an office or staff employee.

2.4.1.3 SubContractor Safety Manager (SSM):

A dedicated full-time Subcontractor Employee assigned safety responsibilities for the project for subcontractors having 30 or more employees. The SSM has the same responsibilities for safety for the Subcontractors that the CSM has for the Contractor.

2.4.1.4 SubContractor Safety Representative (SSR):

At a minimum, each subcontractor is required to have a designated employee assigned safety responsibilities representing the subcontractor's work. Additional SSR personnel shall cover shift work and distinct work locations as required. The Subcontractor can delegate the SSR duties to an on-site Field Supervisor. SSR responsibilities cannot be delegated to an office or staff employee.

2.4.2 Contractor and Subcontractor Safety Manager (CSM / SSM) Requirements

a) The CSM AND SSM must be a Contractor employee and shall be identified in writing to the SFMTA OAR prior to the commencement of work.
b) The Contractor shall submit the resumes of the CSM and SSM candidates to the SFMTA OAR and Safety for review, prior to the start of on-site work.
c) The SFMTA OAR reserves the right to direct the removal and replacement of the CSM OR SSM if necessary.
d) A CSM AND SSM shall be present at all times when work is taking place

- If the Contractor has multiple distinct work locations within the scope of the CSP, each location shall have a CSM or CSR present when work is taking place.

e) A Contractor Safety Representative (CSR) meeting the same qualifications as the CSM shall be present when the CSM is not present at the project. The CSR shall hold the same responsibilities as the CSM. CSR duties may be assumed by a similarly qualified project Supervisor.
   - The Contractor shall notify the SFMTA OAR in writing when the CSM will not be present on the project. This notification shall include the name of the CSR assuming their responsibilities.

f) The Contractor shall maintain a list of all Contractor and Subcontractor Safety Representatives. This list shall be available for review upon request.

g) The Contractor will be required to maintain a list of all "competent persons" for technical aspects for regulatory compliance.

2.4.3 Contractor and Subcontractor Safety Manager Qualifications

a) The CSM and SSM cannot be contract workers. They must be employees.

b) The CSM and SSM must hold a valid certification or professional designation of one of the following:
   - Construction Health and Safety Technician (CHST) issued by the Board of Certified Safety Professionals (BCSP).
   - Occupational Health and Safety Technician (OHST) issued by BCSP.
   - Certified Safety Professional (CSP) issued by the BCSP.
   - Certified Industrial Hygienist (CIH) issued by the American Board of Industrial Hygiene (ABIH).

c) The CSM and SSM shall have a minimum of three (3) to five (5) years of qualified project safety experience on large, similar type construction projects that is representative of the planned construction activities.

d) Evidence of completing either the OSHA 30 Hour Construction Outreach Training or equivalent within the last three years.

e) Current First Aid and CPR training from a provider recognized by OSHA.

f) Ability to stop work in the event of workplace hazards until corrective actions have been implemented.

g) Understanding of the applicable Federal and Cal-OSHA regulations.

h) Capable of conducting detail incident investigations.

i) Communicate effectively with the field staff and project leadership on relevant safety issues.

2.4.4 Contractor and Subcontractor Safety Representatives Requirements

a) Each Subcontractor must have a designated Subcontractor Safety Representative (SSR) who is assigned the responsibilities for managing all safety aspects associated with their subcontractor.

b) Contractors are required to have qualified Contractor Safety Representatives (CSR) to assure adequate coverage on distinct and isolated work locations as identified by the CSM.

c) The CSR and SSRs must be approved by the CSM based on their experience and qualification to administer and manage safety programs.

d) CSR and SSR will be accountable to the Contractor Safety Manager for all safety-related issues.

e) The Contractor, the SFMTA OAR and the Construction Management Leadership Representatives reserve the right to direct the removal and replacement of a CSR or SSR if necessary.

f) Safety Representatives will be required to implement their employer's Injury and Illness Prevention Program (IIPP) and the Contractor's Site-Specific Safety Plan for the project.

g) All CSRs and SSRs will be required to participate as a member of the Project Safety Committee.

2.4.5 Contractor and Subcontractor Safety Representatives Qualifications

a) The CSR and SSR shall have a minimum of three (3) years of construction experience with representative safety experience (primary project duty) for the trade and type of work being performed.
b) Evidence of completing either the OSHA 30 Hour Construction Outreach Training or equivalent within the last three years.
c) Current First Aid and CPR training from a provider recognized by OSHA.
e) Ability to communicate in some manner, in all representative (spoken) languages with the filed crews.
f) Be able to effectively conduct weekly tailgate training sessions.
g) Capable of stopping work in the event of workplace hazards until corrective actions have been implemented.
h) Capable of designing and maintaining an emergency response and evacuation plan.

2.5 CONTRACTOR'S SAFETY MANAGER / REPRESENTATIVE DUTIES

Specific responsibilities of the Contractor's Safety Manager / Representative must include, but are not limited to, completing or overseeing the completion of the following by their Employer and all Subcontractors. Responsibilities include:

a) Conduct project-specific safety orientation sessions for workers who are new to the site, prior to their beginning work.
b) Conduct, participate in, or assist Field Supervisors with weekly toolbox safety meetings.
c) Conduct weekly supervisory and management safety meetings.
d) Instruct and inform supervisors and management on safety rules and regulations.
e) Instruct supervisors and Employees in the proper use and care of personal protective equipment (PPE).
f) Instruct supervisors and Employees concerning special procedures (e.g. confined space entry, trench shoring, lock-out/tag-out, etc.).
g) Complete incident investigation reports in accordance with the Safety Standards. Records are to be maintained at the site, and distributed as described in these Safety Standards.
h) Conduct and document daily project safety inspections. Documentation shall be created and maintained for corrective action taken to correct deficiencies identified during inspections. Records of inspections and corrections are to be maintained at the site.
    - Forward copies of inspection and corrective action records to the Authorized Representative, as requested by CPM and OSM.
i) Maintain training documentation. Records are to be maintained at the site available for review upon request.
j) Implement site-specific safety policies and procedures.
k) Demonstrate, by example, proper safety behavior.
l) Ensure that required first aid supplies are adequate and up to date.
m) Coordinate transportation of Employees with minor injuries to the designated Medical Clinic
n) Inform the CSM/CSR (where applicable), Authorized Representative, CPM of any safety related problems that have or may develop.
o) Maintain records in accordance with OSHA Recordkeeping requirements.
    - The OSHA 300 Log for the project is to be available for review upon request by the Authorized Representative or OSM.
p) Review Site Safety Inspection forms that identify safety non-compliance items.
    - Disseminate the Site Safety Inspection forms to Subcontractors if necessary.
    - Ensure corrective action is taken.

- The Non-Compliance Abatement Report Log for the project is to be available for review upon request by the Authorized Representative or OSM.
- Forms will be presented at the Pre-Construction Meeting.

2.6 PROJECT SAFETY COMMITTEE

a) The Contractor's Project Manager shall serve as the Chair for the Project Safety Committee.
b) At minimum, the Committee shall include the OSM, CPM, CSM, CSRs, and the SSR of each first-tier Subcontractors, the SFMTA Project Management.
c) The Committee shall meet no less than once per calendar quarter.

2.7 PROJECT PLANNING AND PROJECT MEETINGS

a) Safety and loss control activities are key elements in the success of this project.
b) Safety and loss control activities are to be integrated into the work plan such that safety is an integral component of the construction process, rather than treated as a separate activity.
c) There are five main elements to the planning and meeting component of the Construction Safety Standards.
   - **Project Survey**: Prior to the start of work, the Contractor shall conduct a physical survey of the job site. The Contractor shall also review the plans and specifications.
   - **Construction Process Plan:** From the Project Survey, the Contractor shall develop a written Construction Process Plan. The Construction Process Plan shall identify tasks and activities under four main categories:
     - o Construction sequence and procedures
     - o Temporary Structures / Shoring / Re-shoring / Bracing / Retention Systems required
     - o Critical Structures or Processes
     - o Description of required tests and approvals
d) **Job Hazard Analysis:** Job Hazard Analysis (JHA) or Job Safety Analysis (JSA) needs may be pre-determined in part by reviewing the Construction Process Plan and Construction Schedule. The JHA should be prepared far enough in advance of the task or activity to ensure that changes or revisions will not affect the scheduled execution of the task or activity. JHA's are further discussed later in this section.
e) **Contract Progress Meetings:** These meetings are typically held on a weekly or bi-weekly basis, and are typically chaired by the Owner's Authorized Representative (OAR). A sample minimum Safety and Loss Control Agenda is included in this section.
   - The Contractor shall prepare a Risk Mitigation Three-Week Look-Ahead Schedule (form found as (Appendix F) and submit same for review prior to each Contract Progress Meeting
f) **The Owner's Initial and/or the Preparatory Meetings for Quality:** This meeting will be the venue for Pre-Phase Planning for Safety. The agenda for these meetings will also include a section for Pre-Phase Planning for Safety. The Pre-phase meeting needs may be identified from the Construction Process Plan. A sample Pre-Planning Matrix is provided in the Appendices.
   - The Contractor shall plan for the meeting far enough in advance of the start of the relevant phase to ensure that changes or revisions to JHA's and coordination efforts will not affect the scheduled execution of the relevant phase of work.
   - The meeting shall include the Owner's Authorized Representative, OSM, CSM, SSM/SSR, as well as all Contractors and Subcontractors Management Team members involved in that phase of work. This meeting shall identify and address the safety and coordination issues of the relevant phase of work.
   - Pre-Phase Hazard Analysis' shall be prepared using the JHA form (or an acceptable equivalent), specific JHAs are to be prepared using the Pre-Phase Hazard Analysis as a guide.

- Subsequent meetings may be required throughout the phase of work to maintain safety and coordination efforts.

2.8 JOB HAZARD ANALYSIS

a) A Job Hazard Analysis (JHA) is to be developed by the Employer (or Employers) for each task. Each crew shall review the JHA(s) applicable to their tasks to be conducted during their work shift prior to the start of each shift.

- The JHA is a task/operation driven document to ensure that the job task or operation receives proper safety planning prior to beginning work. In actuality, the JHA is a written work plan that incorporates safety procedures into the work procedure. Refer to Section 2 for a list that describes some of the operations and tasks that will require a JHA.

b) JHA's are to be completed by a supervisor familiar with the task to be performed with input from the field personnel who will be responsible for performing the work

- When specific tasks require a JHA, the employer shall facilitate the JHA process and document review of the JHA with the supervisor(s) in advance of the work shift.

c) The Contractor is responsible for reviewing and approving all JHAs for the project.

d) JHAs will need to be available for review request at any time during the process. The OAR or SFTMA Management Team can request to review JHAs prior to the construction activities.

e) To develop and conduct a JHA, follow these basic steps:

f) **Select the job to be analyzed.** Use the following factors as a guide in selecting jobs to be analyzed, remembering that those with the worst incident experience shall be evaluated first.

- Frequency of incidents
- Disabling injuries.
- Potential for severe injury.
- New operations/jobs.

g) **Break the job down into successive steps.** (Avoid making the breakdown too detailed or too general)

- Select an experienced and cooperative Employee to perform the job.
- Explain the purpose of the analysis.
- Observe the Employee as the job is performed.
- Record each job step in the breakdown.
- Review with the Employee and seek comments.

h) Identify the hazards and the potential incidents.

- Is there a danger of striking again, being stuck by, or incurring other injurious contact with an object?
- Can the work be caught in, between, or by objects?
- Is there a potential slip, trip, or fall hazard?
- Are there strain exposures from pushing, pulling, reaching, twisting or lifting?
- Are there environmental hazards in the form of gases, vapors, fumes, mists, or dusts?

i) Develop ways to eliminate hazards and prevent potential incidents.

- Find a new way to do the job.
- Change the physical conditions that create hazards.

2.9 CONTRACT PROGRESS MEETINGS

Following is a suggested agenda for the Safety and Loss Control component of the Progress Meeting. This agenda may be modified to reflect project needs.

1. Contractor
   a) Report of incidents involving the Contractor or its' Subcontractors since the last progress meeting.
      - If the Incident/Near Miss form has not been filed relevant to any incident discussed, it shall be distributed and discussed by the Contractor at this meeting
        - Contractor discussion is to include corrective or preventative action taken to prevent a reoccurrence
   b) Report of injuries to Employees of the Contractor or its' Subcontractors since the last meeting
      - If the Incident/Near Miss form has not been filed relevant to any incident discussed, it shall be distributed and discussed by the Contractor at this meeting
        - Contractor discussion is to include corrective or preventative action taken to prevent a reoccurrence
   c) Report of near-miss incidents involving the Contractor or its' Subcontractors since the last meeting
      - If the Incident/Near Miss form has not been filed relevant to any incident discussed, it shall be distributed and discussed by the Contractor at this meeting
        - Contractor discussion is to include corrective or preventative action taken to prevent a reoccurrence
   d) Provide a description of work activities until the next meeting, including anticipated Employee and public safety concerns and non-routine tasks/activities
      - Contractor is to report on pre-planning that has been done – i.e. steps that will be taken to minimize these hazards.
      - Contractor is to be prepared to discuss pedestrian and vehicular traffic controls that will be employed.
   e) Provide a brief description of activities anticipated for the next three weeks to identify potential concerns in advance to facilitate pre-planning by all parties
      - A Job Safety Analysis or Activity Hazard Analysis may be requested from the Contractor for future activities.
2. Owner Representative
   a) The Owner's Representative will be overseeing and mandating Contractor compliance with the Construction Safety Standards, and approving the Site Specific Safety and Health Plan.
   b) Through the Owner's Representative, the Owner will provide the following services:
      - Assist with Safety Training and Education.
      - Regular Site Safety Inspections.
      - Provide Incident related information.
      - Participate in Incident Investigation as appropriate.
      - Provide technical assistance as needed.
      - Review all required Contractor submittals. Submittals which do not have all the information required to be submitted are not acceptable and will be returned without review.
      - Conduct periodic audits of the Site Specific Safety and Health Plan

2.10 INCIDENT REVIEW MEETINGS

a) The Contractor's safety representative shall schedule an Incident Review Meeting within 72 hours of the occurrence of an incident. The SFMTA Authorized Representative can request a meeting based on any Project incident.

b) For the purposes of this section, "Incident" may be defined as any or all of the following:
   - Near-Miss Incident
   - First-Aid Case
   - Recordable Injury
   - Lost-Time Injury
   - Vehicular Incident
   - General Liability / Third-Party Incident

c) The intent and purpose of this meeting is to interactively and cooperatively identify causal factors that had, or may have had, a role in the incident, and to identify corrective action(s) and practice(s) to implement to avoid potential reoccurrence of the incident. It is NOT a faultfinding or blame-finding event.

d) Attendees should include:
   - Owners' Authorized Representative (OAR)
   - OSM(s)
   - SFMTA Management Team Members (as necessary)
   - CSM/CSR
   - CPM
   - SSR (if applicable)
   - OSM
   - Contractor / Subcontractor (Assistant) Superintendent(s) accountable via functional structure of the project for the incident
   - Contractor / Subcontractor (General) Foreman / Foremen accountable via functional structure of the project for the incident
   - Craft person(s) involved with the incident. (Optional)

2.11 PRE-SHIFT CREW MEETINGS (PRODUCTION AND SAFETY)

a) Each Contractor and Subcontractor crew shall conduct a pre-shift production and safety meeting at the start of each shift.

b) These meetings shall:
   - Review of production activities for the shift
   - Review of safety activities that are a component of the production activities

c) Such meetings are to generally be five (5) to ten (10) minutes long, and are, at minimum, to focus on the following:
   - Tasks for the shift
     - Applicable Job Safety Analysis
   - Tools and equipment needed for those tasks
   - Materials needed for those tasks
   - Proper material handling techniques
   - Safe work procedures to perform those tasks
   - PPE needed to safety perform those tasks
   - Questions from the crew

d) These meetings shall be documented in the same manner as the weekly Safety Meeting.

2.12 REPORTS AND FORMS

Note: Contractor may use furnished forms or equivalent, provided information is complete and understood

a) The Contractor is responsible conducting weekly site safety inspection and ensuring that corrective action is taken on the completed Site Safety Inspection Check List. The *Non-Compliance Abatement Report* must be completed by the Contractor. Upon request Non-Compliance Abatement Report must be furnished to the OAR, OSM.
b) Each Employer shall maintain copies of weekly toolbox safety meeting reports on site for review upon request by the Authorized Representative.
c) Each Employer shall maintain weekly project inspection reports and corresponding corrective action records on site for review upon request by the Authorized Representative.
d) Upon request, each Employer shall electronically submit to the Authorized Representative via the Contractor a copy of:
   - Weekly safety meeting reports
   - Weekly inspection reports
   - Corrective action records (may be on the same form as the inspection reports)
e) The Contractor will furnish authorized Representative with a copy of the completed forms no later than 24 hours after knowledge of the incident or injury.
   - NOTE: The forms do not constitute notice to the Carrier, and do not replace the Employer's First Report of Injury that must be filed with the Contractor's Workers' Compensation Insurance Carrier by the Employer of the injured/ill Employee.

2.13 CONTRACTOR/SUBCONTRACTOR SAFETY NON-COMPLIANCE

If the Owner's Representative becomes aware of any non-compliance with any applicable safety standards, orders, codes or regulation, the Owner's Representative or his/her designee shall:

a) Notify the Contractor of the non-compliance and of the corrective action required. This notice, when delivered to the Contractor or the Contractor's representative at the Project Site, shall be deemed sufficient notice of the non-compliance to immediately implement corrective action.
b) Exercise the right to issue a suspend work order suspending all or part of the Work if the Contractor fails or refuses to take corrective action within the time specified in the notice. The order shall remain in effect until satisfactory corrective action has been taken.
c) Deny any claim or request from the Contractor for equitable adjustment for additional time or money on any Suspend Work Order issued under these safety hazard circumstances.
d) Require the immediate removal of any employee or equipment from the Project Site deemed by the Owner's Representative to be unsafe.
e) The Contractor's Competent Person or other personnel shall be replaced by the Contractor at the direction of the Owner's Representative for their non-performance of his or her safety/security duties at no additional cost to the Contract.
f) .If the Contractor fails to correct any safety deficiency or property damage within the time specified on a notice of non-compliance or suspension of work order issued, the Owner's Representative shall have the right to reduce or decline progress payments in accordance with the Specifications.
g) Willful or repeated non-compliance may result in an employee or contractor being removed for failing to perform work properly as per the Specifications.
h) No corrective order provided by the Owner's Representative is intended to relieve the Contractor of its obligations, under any applicable law, to provide a safe workplace and to comply with safety regulations, and the Contractor is obligated to provide whatever additional measures may be required to meet the needs of the existing circumstances.

2.14 DRUG FREE WORKPLACE POLICY

The City adopted a Drug Free Workplace Policy in 1989. Further, the SFMTA Substance Abuse Program implements the Drug Free Workplace Policy. Employers shall inform Employee of the City Policy and may implement a policy reflecting the following:

a) The Policy prohibits the possession, distribution, promotion, manufacture, sale, use or abuse of illegal and unauthorized drugs, drug paraphernalia, controlled substances and alcoholic beverages by Employees, agents or any person otherwise under the control of the Employer, including Employees and agents of Subcontractors and consultants while on the work site while working on the Project.
b) The Policy apply to all personnel, including but not limited to regular, part-time, probationary, casual and contract Employees of the company, as well as to Employees and agents of Subcontractors and consultants.
c) Employees may possess a prescription medication in its original container and prescribed for current use of the person in possession by an authorized medical practitioner; provided that the physician must issue a written prescription that clearly indicates the Employee's name, drug type and proper dosage.
d) Every Employee must notify the SFMTA of any criminal drug statue conviction for a violation occurring in the workplace within five days after such conviction.

NOTE: CAL-OSHA 8410 (e) states "No person shall be permitted to use or possess any intoxicating liquors or drugs at any place of employment where these safety orders apply. When any person is known or suspected of being under the influence of intoxicating liquor or drugs, he/she shall not be permitted to enter or remain on the job site".

2.15 RETURN TO WORK PROGRAM

This is to establish basic guidelines for the Contractor to establish Early Return To Work (transitional duty) work assignment for injured workers. Each Employer shall have a written Early Return To Work Program that shall be implemented on this project unless specifically prohibited by the terms of a Collective Bargaining Agreement.

2.15.1 Definitions

2.15.1.1 Injured Worker:

An injured Employee who has sustained a job related injury or illness that results in a Workers' Compensation claim.

2.15.1.2 Transitional Duty Work:

Temporary job that the injured worker can perform while recovering from the work related injury or illness. *Transitional duty* is the same thing as *Temporary Modified Duty.* The job may be limited to a specific time frame.

2.15.2 Benefits

a) Effectively impacts the Employer's Experience Modification Rating and contributes to reduced insurance premiums.
b) May eliminate the need for vocational rehabilitation.
c) Boosts Employee morale and demonstrates that the Employer wants to cooperate with the injured worker.
d) A worker on transitional duty can be of value to an Employer if there is an alternative plan or job description available.

2.15.3 Fundamental Requirements

a) Construction Employees who are disabled by an injury or illness suffered at work are entitled to

receive workers' compensation payments including both the cost of medical treatment and replacement of lost wages during the period of their disability.

b) Employers shall implement an Early Return to Work Program that provides transitional jobs in certain specified instances. A transitional job is work, which requires the Employee to avoid certain types of physical activity, depending on the nature of the Employee's injury.
c) A transitional duty assignment will not change a worker's benefits, coverage and premium amounts. Any injured worker will be considered for transitional work to comply with the doctor's restrictions.

2.15.4 How to Identify Transitional Work

a) Review all job descriptions for modification.
b) Identify transitional work in each department.
c) Make sure transitional duties are within Employee's stated capabilities
d) Communicate with other departments to share transitional duty worker.

2.15.5 Examples of Modified (Transitional) Jobs

a) Flagging or directing traffic.
b) Monitoring quantity of export/import materials.
c) Monitoring safety requirements of co-workers.
d) Conducting safety meetings and training.
e) Delineating trenches, excavations or danger areas.
f) Cross-training for another job or offsite training.
g) Assisting the estimating department by delivering estimates, blue prints, etc.
h) Assisting in warehouse or tool cribs.

3. FORMS, REPORTS AND DISTRIBUTION INSTRUCTIONS

This section illustrates the forms that may be used on this project. Equivalent Contractor forms may be used with the SFMTA Safety Approval.

Electronic copies of the of relevant forms are available in the Appendices

SFMTA reserves the right to change, modify, or substitute these forms.

3.1 APPENDIX K – SAFETY INSPECTION CHECK LIST

The Safety Inspection Check List (Appendix K) for weekly inspections will used as applicable to the operations and completed by the Contractor to document non-compliance items observed on or related to the project. Inspection results will be reviewed and discussed with appropriate on site personnel and crews

As applicable The General Contractor will ensure the inspection results are shared and discussed with Sub-Contractors and their crews.

3.2 APPENDIX I – NON-COMPLIANCE ABATEMENT REPORT

The Non-Compliance Abatement Report (Appendix I) will be completed by the Contractor when the Weekly Inspection Results identifies items that were not immediately corrected, and at the request of the OSM, written evidence of correction to be provided.

The Contractor is to complete the form in its entirety and ensure follow up is provided, so items are corrected in a timely manner.

3.3 APPENDIX H – INCIDENT/NEAR MISS REPORT

The Incident/Near Mess Report or its equivalent is to be completed by the Contractor for all applicable incidents within 24 hours of the incident. If the incident involves a subcontractor, both the Contractor and Subcontractor are to provide independent, completed reports.

The Incident/Near Miss Form (Appendix H) is to be used in conjunction with the Root Cause Analysis Chart (Appendix g) to investigate the following types of incidents:

- Incidents resulting in an OSHA recordable injury or illness
- Incidents resulting in business interruption
- Incidents resulting in process interruption
- Near-miss incidents with potential high-severity consequences

3.4 APPENDIX J – MONTHLY NON-COMPLIANCE ITEM SUMMARY

The Monthly Non-Compliance Item Summary (Appendix J) is prepared by Contractor Safety Manager at the end of each month to provide project safety compliance information to the SFMTA Management Team, OSM and the OAR. This report should be made available at the request of OSM and/or OAR.

This report will include the General/Prime Contractor and all Subcontractors working under that General/Prime Contractor. The report will identify the number of non-compliance observations by category for the report period.

3.5 APPENDIX L – MONTHLY MAN/HOUR AND INJURY UPDATE REPORT

At the end of each month, the General Contractor will submit to the OSM and/or OAR a Summary of Man/Hours and Injury Update. The report will include totals of man/hours and injury updates for the General Contractor and Subcontractors. The General Contractor will also keep a copy of Summary of Man/Hours and Injury Update on file at the General Contractor's office

4. CONTRACTOR SAFETY STANDARDS

Following are the minimum safety requirements and guidelines for this project.
No attempt has been made to restate applicable OSHA, ANSI, NFPA, State/Federal Agency, or State and Local standards in their entirety. The Contractor is reminded of its' responsibility to have at least one copy of all applicable OSHA Standards, as well as other Standards incorporated by reference into the OSHA Standards, available at the project for use and review.
In some instances, the Contractor Safety Standards are more stringent than the applicable OSHA standards. In other instances due to variables in State OSHA programs, the applicable State OSHA standards may be more stringent than the Contractor Safety Standards. The Contractor is reminded that the most stringent requirement shall apply.

4.1 AIR TESTING EQUIPMENT

a) Approved air testing equipment shall be used to test utility holes, cable vaults, pits, confined spaces and similar spaces for flammable, toxic, or oxygen deficient atmospheres. The exposing Employer(s) is (are) responsible for the provision, maintenance, calibration and testing of said equipment.

b) Air testing equipment shall be UL classified for use in Class I, Division 1, Groups A, B, C & D Division 1 hazardous locations as defined by the National Electrical Code.

c) Air testing equipment must be tested and calibrated as required by the manufacturer before each use.

d) Testing, calibration, use, and repairs shall be in accordance with the manufacturer's operating manual and instructions.

e) Prior to use, Employees must be trained per manufacturer requirements on the use, limitations and alarm modes of each air-testing device that they use.

f) Air testing equipment must be fully functional and checked per manufacturer requirements prior to use.

g) Employees must immediately leave a work area whenever an equipment alarm sounds due to:

- Low or high oxygen level (acceptable range is 19.5% to 23% oxygen).
- Combustible gas detected above 10% lower explosive limit (LEL).
- Set point for a toxic gas level is reached (e.g., 10 ppm hydrogen sulfide)
- Sensor failure
- Low battery alarm.

h) Equipment must be carried with the Employee or placed immediately adjacent to the work area and set to operate in a continuous monitor mode.

4.2 ASBESTOS

a) Asbestos is to be handled only by AHERA trained and Cal/OSHA qualified and certified Employers and Employees.

- Abatement Contractors/Subcontractors must be approved in accordance with applicable State, Federal, and Local requirements to perform removal and disposal of asbestos containing material and encapsulation.

b) Contractors must determine the existence of asbestos content in buildings/ building materials PRIOR to any construction, remodeling, or demolition activities.

c) Upon discovery of any asbestos containing materials (ACM) or presumed asbestos containing materials (PACM), Contractor/Subcontractor shall stop work in such areas and notify the SFMTA Project Management personnel and the OSM.

d) The Contractor/Subcontractor that may come in contact with asbestos shall ensure Employees are trained in asbestos awareness to identify ACM and PACM

e) All asbestos abatement/removal work must follow all regulations of OSHA, the Environmental Protection Agency (EPA) or applicable state agency, and the applicable Air Quality Management District.

4.3 BARRICADES

a) Barricades are required around excavations, holes or openings in floor or roof areas, edges of roofs and elevated platforms, around certain types of overhead work, and wherever necessary to warn or protect people against falling in, through or off. Barricades may also be used to isolate people (such as Employees of other crews or Employers, other project/Owner personnel, and the public) from work activities as required by the activity, potential hazards created by the activity, or the location of the activity.

- Barricades must be suitable for the area of use (i.e., blinker type barricade or protective barricade to provide physical protection from falling).

b) To ensure the safety of the general public, the Employer shall provide and maintain adequate protection, such as chain link fences, gates and barricades, to separate work areas from areas outside job site limits.

- Barricades must be suitable for the area of use (i.e., blinker type barricade or protective barricade to provide physical protection from falling).
- Barricades/fences are to be placed around all construction trenches.
- Portable fencing shall be installed around construction work areas, contractor storage areas, and contractor's heavy equipment if they are not otherwise protected within the confines of the Project's perimeter barricade. Portable fencing used in Chinatown or at Union Square shall screen the construction sites from outside view.

4.3.1 Fencing

a) Chain link fencing shall be free from barbs, icicles (excess galvanizing material that may form sharp projections) or other projections that may cause injury.
b) Fencing must be in good repair and installed to ensure stability of the fencing from being knocked over by Employees, or the general public.
c) Portable fencing shall be installed/braced to prevent being blown over during windy conditions.
d) Base supports of portable fencing shall be installed/placed to eliminate tripping hazards when fencing is placed adjacent to sidewalks and walkways.
e) SFMTA reserves the right to prohibit use of, temporary fence panel systems that require the use of a tubular or pedestal base support system that presents a potential trip hazard to pedestrians.

4.4 BURNING, WELDING AND HOT WORK

a) The Employer shall procure and post all permits necessary for hot work as required by SFMTA.
b) The Employer shall have a Hot Work Program for fire prevention during hot work activities.

- This Program shall meet or exceed the requirements of NFPA 51B-1999, "Standard for Fire Prevention during Welding, Cutting and Other Hot Work".

c) An approved fire extinguisher and/or other fire protection equipment are to be provided by the Employer for each hot work operation in accordance with OSHA and local Fire Marshal / Fire Code requirements.
d) The Employer shall provide appropriate firefighting equipment for each hot work activity. This equipment shall be located on the same elevation(s) of the work and within 25 feet of the hot work activity.
e) When air monitoring is required, the Lower Explosive Limit must be non-detectable (0% LEL), prior to any type of burning, welding, or hot work being conducted by the Employer.

- Air monitoring will be required around or near any areas that may pose a potential fire or explosion threat from flammable or combustible vapors, for example.

4.4.1 Fencing

a) Hot work includes, but is not limited to, the following activities: grinding, cutting, welding, brazing or soldering, heating, hot air welding or other operations that generate heat, flames, arcs, sparks or other sources of ignition.
b) Prior to performing hot work the Employer shall evaluate the following: type of hot work to be performed, site preparation, atmospheric conditions, use of appropriate personal protective equipment, and firefighting equipment.
c) Site preparation should include a survey for the following: combustible materials; hazards posed by heat transfer; flammable, corrosive, or toxic residues; equipment linings; appropriate lock/tag out application; and housekeeping.
d) The Employer shall also evaluate the work area for the potential consequences of thermal conduction. Thermal conduction is the transfer of heat that could cause ignition by/through an object heated by the hot work operation.

4.5 CLOTHING / PROFESSIONAL DEMEANOR

a) The Contractor shall require each Employee, agent, or Subcontractor to wear appropriate attire of a form in accordance with the provisions of the contract.

4.5.1 Clothing

a) Employee dress should be neat in appearance and consistent with a professional atmosphere.

b) Shirts and long pants must be worn at all times on the site.
c) Sleeveless shirts and tank tops are not permitted.
d) Clothing should not be torn or frayed.
e) Clothing contaminated by oily, flammable, toxic or caustic materials should not be worn until properly cleaned.
f) Certain tasks may require the wearing of fire-resistant materials, such as Nomex . In such circumstances, extremely flammable clothing material such as nylon should be discouraged.

4.5.2 Foot Protection

Appropriate foot protection shall be required for workers who are exposed to foot injuries form electrical hazards, hot work, corrosive or poisonous substances, falling objects, crushing or penetrating action, which may cause injuries, or who are required to work in abnormally wet conditions.

a) Tennis shoes are prohibited.
b) Foot wear that is defective or inappropriate to the extent that its ordinary use creates the possibility of foot injuries shall not be worn.
c) Soles should be made of slip-resistant materials, and not worn to the point where slip resistance is compromised.

4.5.3 Professional Demeanor

a) Personal cellular telephone use is prohibited except during lunch and authorized breaks.
b) Equipment operators are prohibited from operating their equipment while conducting any (personal or business) cellular telephone conversation.

4.6 COMPRESSED GAS CYLINDERS, GAS CUTTING AND WELDING

a) All cylinders must be secured and transported in an upright position at all times.
b) Oxygen and fuel gas cylinders must be:

- separated at least 20 ft., or a 5 foot high barrier with a 1/2 hour fire rating when in storage, and
- placed away from potential contact that may rupture the tanks.

c) Cylinder valves shall be turned to the off position if left inactive for 30 minutes or longer.

d) Cylinders designed for valve protection caps must have the valve protection caps installed when in storage or when being transported.
e) Cylinders, hoses, and fittings shall be checked for leaks and damage on a regular basis.
f) Cylinders must be labeled as to the nature of their contents per NFPA requirements and the OSHA Hazard Communication Standard.
g) Cylinders shall not be taken into confined spaces.
h) Cylinder storage areas shall have appropriate warning signage posted.
i) Appropriate fire-fighting equipment must be provided for each cylinder storage area.
j) Torches and hoses shall not be left connected to cylinders overnight.
k) Torches and hoses shall not be stored in unventilated gang boxes or storage containers.
l) Flashback arrestors and check valves shall be installed in accordance with manufacturer's instruction on all oxygen-fuel torch sets.

4.7 COMPRESSED GAS CYLINDERS, GAS CUTTING AND WELDING

4.7.1 Concrete Construction

a) The creating Contractor must guard all protruding reinforcing steel to eliminate impalement hazards.

4.7.2 Structural Concrete

a) The Contractor must not remove any forms or shoring until a determination has been made by the testing lab and structural Authorized Representative that the concrete has gained sufficient strength to support its own weight and that of superimposed loads.
b) The Contractor must not place loads on any concrete structure until concrete has reached a compressive strength predetermined by the Structural Engineer of record.
c) The Contractor shall be the point of contact for information regarding this item.
d) Where concrete shoring/re-shoring is employed, a shoring/re-shoring plan specific to the project shall be available for review at the project.

- Deviations from the shoring/re-shoring plan will require the issuance of a new shoring/re-shoring plan.
    - The addition of superimposed loads on the floor (such as equipment and/or materials) not considered in the re-shoring plan shall be construed as a deviation from the plan.

4.7.3 Pouring and Pumping Operations

a) Permanent and temporary power lines shall be identified prior to the start of a concrete pour. Appropriate safeguards shall be implemented for the pumping, pouring and finishing operations.
b) A site specific traffic control plan shall be established for concrete truck traffic. Trained spotters and Flaggers shall be used as necessary for worker and public safety. Additionally, a site logistics plan shall be prepared for each pump location, and shall include provisions for concrete truck traffic routing and control, as well as pedestrian traffic routing and control (if applicable).
c) Employees involved in pouring and finishing activities shall have appropriate personal protection equipment, including gloves, mud boots, and eye protection.
d) Concrete truck washout areas shall be in an area acceptable to the Owner, and located out of vehicular and pedestrian travel areas.
e) Diapers or the equivalent shall be provided for the pump and concrete trucks when the truck to pump transfer occurs in a public street or other public area.

4.7.4 Masonry Construction

a) Masonry walls shall be braced and/or supported as required by OSHA and/or local requirements.

4.7.5 Clear Zone

a) Unauthorized personnel shall be prohibited from entering the work area.

4.7.6 Cutting, Grinding and Profiling

a) Dry cutting, grinding, and profiling of concrete or masonry shall be prohibited except in instances where it is determined in a manner consistent with applicable safety and health standards that the use of water in the cutting, grinding or profiling is not feasible.
b) If it is determined that the use of water is infeasible:

- The Employer shall use work practice controls to control the dust, such as a vacuum with a high efficiency particulate air filter (HEPA), or other dust control system;
- Any dry cutting which occurs shall be done in a designated area away from other Employees if possible; and
    - The Employer shall provide affected Employees with appropriate respiratory protection as part of a respiratory protection program in accordance with applicable OSHA standards.

4.8 CONFINED SPACE ENTRY

a) All confined spaces will be evaluated by the CSM and approved by the OSM for specific classification.
b) Prior to commencing work in a Permit-Required Confined Spaces, the employer shall have a formal written program approved by the Contractor and OSM including the permitting requirements.
c) The Employer must abide by the applicable OSHA standards for all confined space entry operations and furnish all appropriate personnel, equipment, and support.
d) Employer personnel must be trained in the hazards of confined space work, including operating and rescue procedures, the use of respiratory equipment, and instructions as to the hazards they may encounter.
e) The Employer shall develop a written, understandable confined space operating and rescue procedure. This procedure must be made available to all affected Employees.
f) The Employer is required to provide all necessary entry-rescue equipment required for all entries into confined spaces (tripod, full body harness and lifeline or equivalent, etc.) as required by the applicable Standard. Wrist straps may be used in designated areas instead of a full body harness.
g) Prior to entry into a confined space, the Employer shall ensure all lines that may convey flammable, injurious, or incapacitating substances into the space are disconnected, blinded, or blocked off by other positive means in accordance with Lockout/Tagout regulations.
h) Prior to entry into confined space, the Employer shall test the air with an appropriate device or method for: (1) Oxygen content, (2) Flammable gases and vapors, and (3) Potential toxic air contaminants. A written record shall be made and kept at the work site.
i) The confined space shall be emptied, flushed, or otherwise purged of flammable or injurious substances to the extent feasible.

- The Employer is required to provide the proper ventilation equipment

j) Whenever an atmosphere free of dangerous air contamination and/or oxygen deficiency cannot be ensured, the Employer shall provide approved respiratory equipment to affected Employees, who are involved in a comprehensive respiratory protection program in accordance with applicable OSHA standards.
k) Where a Standby Employee is required, the Standby Employee must have a valid certificate in First Aid and CPR training from the American Red Cross, or equivalent training verified by documentary evidence.
l) Visual contact or two-way radio communication must be available at all times.

- Any dry cutting which occurs shall be done in a designated area away from oth If radios are selected for communication, the Employer shall provide the radios.

m) The Employer must establish a means of communication with outside Emergency Services.

4.9 CONNECTIONS TO UTILITIES

a) The Contractor shall not, or allow any Subcontractor to, make any temporary service connections to electrical, water, air or steam utilities without approval of the applicable utility owner
b) Temporary connections shall comply with all applicable Federal, State, and local regulations.
c) Temporary connections shall be inspected on a regular basis.

4.10 CRANES, BOOM TRUCKS AND RIGGING

The term crane as used in this section shall be construed to include boom trucks and similar truck-mounted cranes.

a) Prior to commencing any lifting over buildings/structures, the Contractor shall request a permit at least one week prior to the scheduled lift.
b) Cranes and derricks exceeding three tons rated capacity shall not be used in lifting service until an approved certifying agent has certified the equipment.

- Current annual and quadrennial (where required) inspection certificates shall be maintained on each crane.
- Cranes that do not have such evidence of inspection shall not be permitted to operate on the project.
- Current daily and periodic inspection records shall be maintained on each crane.

c) An approved certifying agent shall re-inspect any crane that is involved in any incident or is damaged during set-up or operation, and a new certificate of inspection issued prior to being returned to service.
d) Only Employees authorized by the Contractor and trained, or known to be qualified, in the safe operation of cranes or hoisting apparatus shall be permitted to operate such equipment.

- Where required, Operators shall have valid evidence of current Licensing or Certification in accordance with State and Local requirements.
- Operators not having such evidence where required shall not be permitted to operate applicable machinery (except under terms and conditions prescribed for Trainees by applicable regulations).

e) All mobile cranes having either a maximum rated boom length exceeding 200 feet or a maximum rated capacity exceeding 50 tons shall be equipped with a load indicating device or a load movement device.
f) Cranes shall be equipped with a boom angle or a boom radius indicator and clearly legible load chart in clear view from the Operator's position.
g) An effective, audible warning and operating signal device (such as a horn) shall be provided on the outside of the crane. The controls shall be in easy reach of the Operator.
h) When required by the manufacturer's or certifying agent's instructions, outriggers shall be set so that wheels or crawler tracks within the boundary of the outriggers shall be relieved of all weight by the outrigger jacks or blocking.
i) Plates, pads or mats shall be used under the outriggers or crawlers of all cranes when a lift exceeds 75% of the capacity of the crane as it is configured for that lift. The plates, pads, or mats shall be of suitable material and size to support the crane on the surface that it is set up on.
j) The Employer shall ensure that a qualified person visually inspects the crane, derrick, or hoist's controls, rigging and operating mechanism prior to the first operation of any work shift. Records of daily inspections by the Operator or other qualified person shall be maintained on the crane, and must be available for review upon request.
k) Adjustments and repairs to the crane shall only be made by a qualified person.
l) A fire extinguisher of not less than 10-B:C rating shall be kept in serviceable condition and readily accessible to the Operator.
m) Operations shall be conducted and the job controlled in a manner to prevent loads from being passed directly over workers, occupied workspaces, or occupied passageways.

n) A qualified signal person shall be provided when the point of operation is not in full and direct view of the Operator unless a signaling or control device is provided. Only one person shall be permitted to give signals to the Operator.

- Any Employee involved in the operation may give a "stop" signal if such a signal is warranted.

o) A legible chart depicting and explaining the system of crane signals used shall be conspicuously posted in the vicinity of the hoisting operation.
p) All loads shall be rigged by an identified, qualified, and authorized Rigger.
q) No Employee shall be permitted to ride on loads, hooks, or slings of any derrick, hoist, or crane.
r) Swing radius protection shall be provided where a rotating crane is positioned to operate in areas where persons may be caught between rotating parts and fixed objects or non-rotating crane components.
s) Tag lines, restraint lines, or guide ropes shall be used on all loads except where their use presents a greater hazard. Such lines or ropes should be insulated to prevent shock, and shall not contain knots or splices that may snag on an object.
t) Cranes, hoists, or derricks shall not be left unattended while the load is suspended unless the load is over water, a barricaded area, or is blocked up or otherwise supported.
u) Before leaving the crane unattended, the Operator shall:

- Land or properly secure any attached load
- Disengage clutch (if applicable)
- Set travel, swing, boom brakes, and other locking devices unless otherwise specified by the certifying agents
- Put controls in the "off" position
- Stop the engine
- Secure the crane against accidental travel

v) In all operations where the weight of the load being handled is unknown and may approach the rated capacity, a qualified person shall determine the magnitude of the load unless the crane is equipped with a load-indicating device.
w) The Contractor shall provide a qualified person to direct the lift. The qualified person shall see that:

- The crane is properly leveled for the work being performed and blocked where necessary.
- The load is well secured and properly balanced in the sling or lifting device before it is lifted more than a few inches.

x) A designated person shall monitor the clearance between crane booms, load lines, and loads, and power lines and alert the Operator when necessary.
y) For power lines rated 50k V, or less, minimum clearance between the lines and any part of the crane or load is 10 feet. For power lines rated over 50k V, minimum clearance between the lines and any part of the crane or load shall be 10 feet plus 0.4 inch for every 1k V over 50k V.
z) Rigging, Slings and Hooks

- Hoisting hooks shall be of the safety latch-type.
- Crane hooks with cracks or with deformation of throat opening more than 15 percent in excess of normal opening or more than 10-degree twist from plane of unbent hook shall be removed from service.
- Ropes shall be inspected for proper lubrication, excessive wear, broken strands, and proper weaving.
- In order to determine proper time for replacement, a continuing inspection record shall be maintained for hoisting ropes. Conditions such as the following shall be reason for replacement:

  - In running ropes, 6 randomly distributed broken wires in one rope lay, or 3 broken wires in one strand in one lay.
  - Wear of 1/3 the diameter of outside individual wires.
  - Kinking, crushing, bird caging, or other damage resulting in distortion of the rope structure.
  - In stranding ropes, more than 2 broken wires in one lay in sections beyond end connections or more than one broken wire at an end connection.
  - Reduction of rope diameter below nominal diameter due to loss of core support, internal or external corrosion, or wear of outside wires.
- Fixtures are usually attached to wire rope by the use of wire rope clips. The clips must be attached with the inside curve of the U-bolt against the dead, or short end of the wire rope, and flat clip (saddle) against the live, or long end of the wire rope.
- Each day before being used, wire rope slings, alloy steel chain slings, metal mesh slings, and natural and synthetic fiber rope slings, and all fastenings and Appendices shall be inspected for damage or defects by a qualified person.
- Slings shall have permanently affixed tags stating the following:
  - Manufacturer's name or trademark
  - Rated capacity

4.11 CRITICAL LIFTS (CRANES, BOOM TRUCKS, DERRICKS, ETC.)

a) A Critical Lift Plan shall be prepared for all lifts that:

- Exceed 75% of the lifting device's capacity as configured for that lift; or
- Is deemed a critical lift by the Owner or Inspector by reason of potential negative consequences to safety, structure, or schedule; or
- Involve two or more cranes or lifting devices.

b) A qualified person shall prepare the Critical Lift Plan. The qualified person preparing the plan may be the crane Operator, lift supervisor, or rigger. The crane Operator, lift supervisor, and rigger shall participate in the preparation of the plan. The plan shall be documented, and a copy provided to the Contractor and the SFMTA Project Management personnel and the OSM.

c) The plan shall be reviewed by, and signed by, all personnel involved with the lift.

- The plan shall specify the exact size and weight of the load to be lifted and all crane and rigging components that add to the weight. The manufacturer's maximum load limits for the entire range of the lift as listed in the load charts shall also be specified.
- The plan shall specify the lift geometry and procedures, including the crane position, height of the lift, the load radius, and the boom length and angle, for the entire range of the lift.
- The plan shall designate the crane Operator, lift supervisor, and rigger, and state their qualifications.
- The plan will include a rigging plan that shows the lift points and describes rigging procedures and hardware requirements.
- The plan will describe the ground conditions, outrigger or crawler track requirements, and, if necessary, the design of mats, necessary to achieve a level, stable foundation of sufficient bearing capacity for the lift.
  - For floating cranes or derricks, the plan shall describe the operating base (platform) condition and any potential list.
- The plan will list environmental conditions under which lift operations are to be stopped.
- The plan will specify coordination and communication requirements for the lift operation.
- For tandem or tailing crane lifts, the plan will specify the make and model of the cranes, the line, boom and swing speeds, and requirements for an equalizer beam.

4.12 DEMOLITION

a) Prior to permitting employees to start demolition operations, a qualified person shall make a survey of the structure to determine the condition of the framing, floors, and walls, and the possibility of an unplanned collapse of any portion of the structure? Any adjacent structure where employees may be exposed shall also be similarly checked. The survey shall be in written form, and kept on the job-site.

b) Utility companies shall be notified and all utility service shut off, capped, or otherwise controlled, at the building or curb line before starting demolition. The Employer is responsible to verify that these actions have been taken.

c) The Contractor shall develop an Emergency Call List for all known utility owners prior to the start of demolition activities.

d) A site plan shall be marked up to show the locations of known utilities, and the nearest identified shut-off valves/controls. This plan shall be available in the Contractor's Site Office. Designated SFMTA Project Management personnel and the OSM shall be provided with a copy.

e) Existing alarm systems shall be identified and taken out of service prior to commencing demolition operations. Alarm services shall be notified that the alarm will be taken out of service before taking the system out of service.

f) The Contractor shall determine if any type of hazardous chemicals, gases, explosives, flammable materials, or similarly dangerous substances have been used in any pipes, tanks, or other equipment on the property.

g) When the presence of hazardous substances is apparent or suspected, testing and purging shall be performed and the hazard eliminated prior to demolition.

h) Pipe-covering insulation, steel beam and column fire protection, and HVAC duct shall be surveyed for asbestos.

i) During demolition, continuing inspections shall be made as the work progresses to detect hazards resulting from weakened, load burdened, or deteriorated floors or walls or loosened materials.

j) The Contractor and Employer shall ensure that floor load limits are not exceeded during demolition operations.

k) Disperse demolition equipment throughout the structure and remove demolished materials to prevent excessive loads on supporting walls, floors or framing.

l) Adequate dust control measures shall be provided during demolition, stockpiling and loading operations.

m) Walking across exposed floor joists, steel beams, or girders is prohibited.

n) The Contractor and Employer shall ensure safe passage of persons around the area of demolition. Conduct operations to prevent damage to adjacent buildings, structures, other facilities, and people.

o) Provide interior and exterior shoring, bracing, or supports to prevent movement, settlement or collapse of structures to be demolished, and to adjacent facilities.

p) Demolish concrete and masonry in sections. Use bracing and shoring to prevent collapse.

4.13 ELECTRICAL

a) All temporary power panels shall have covers installed at all times by the Employer.
   - All circuits must be clearly labeled.

b) The Contractor is to supply ground fault circuit interrupters ("GFCI") for all temporary electrical wiring cords and equipment.
   - Ground Fault Circuit Interrupters shall be tested in accordance with manufacturer's requirements. Logs shall be maintained of all such testing.

- Certain Ground Fault Circuit Interrupters have an automatic reset feature. Such GFCIs are not permitted on this project.

c) Temporary lighting shall not be suspended by its' extension/power cord.

d) Romex® cable will not be permitted as an electrical cord (example: temporary lighting).

e) Temporary lighting must be equipped with guards to prevent contact with the bulb.

f) Extension cords must be at minimum 12 gauge, three-wire cords.

g) Power tools must be double insulated or grounded properly, and inspected prior to use.

h) The Employer must properly tagout and/or lockout any equipment within the Employer's responsibility. Control of the lock and/or tag is also the Employer's responsibility.

i) The Contractor shall coordinate instances that require multi-Employer lockout/tagout activities.

j) Ground pins shall not be removed from electrical cords.

k) Damaged or defective tools and cords shall be removed from service.

l) Generally, Contractors are prohibited from working on energized systems. Any deviation from this position will require the Contractor to be compliant with CAL-OSHA Chapter 5 Electrical Safety Orders and obtain SFMTA approval and as required by the Contract. (This includes all testing).

4.14 ELEVATING WORK PLATFORMS AND AERIAL DEVICES

a) Only authorized and trained personnel shall operate an aerial device or elevating work platform.

b) Boom, basket, platform load limits specified by the manufacturer shall not be exceeded.

c) Employees shall not sit or climb on the edge of the basket or platform or use planks, ladders, guardrails or other devices to gain greater height.

d) Employees shall not work off of elevated work platforms or aerial devices when exposed to high winds.

e) Aerial Devices

- An aerial device is any vehicle-mounted or self-propelled device, telescoping extensible or articulating, or both, which is primarily designed to position personnel.
- Belting off to an adjacent pole, structure, or equipment while working from an aerial device is not permitted.
- Lift controls shall be tested in accordance with the manufacturer's recommendations or instructions prior to use to determine that such controls are in safe working condition.
- Aerial baskets or platforms shall not be supported by adjacent structures when workers are on the platform or in the baskets while in an elevated position.
- An Employee, while in an elevated aerial device shall be secured to the identified anchorage point through the use of a full body harness and lanyard for fall protection.

f) Elevating Work Platforms

- An elevating work platform is a device designed to elevate a platform in a substantially vertical axis. (Vertical Tower, Scissor-Lift)
- The top rail shall be 42 inches high, plus or minus 3 inches, with a mid-rail at the half-height point. Where the guardrail is less than 39 inches high, an approved personal fall protection system shall be used.
- Powered elevating work platforms shall have both upper and lower control devices. Controls shall be plainly marked as to their function and guarded to prevent accidental operation.
- An emergency stopping device shall be provided at the upper controls of elevating work platforms.
- Ladders or other objects shall not be placed on top of units to gain greater height.

4.15 EMERGENCY ACTION / EVACUATION PLAN

a) The Contractor is responsible for the development of a project-wide emergency action plan that shall take into account probable and possible emergency situations.
   - Each Employer shall develop a written job-specific emergency action plan that shall take into account probable and possible emergency situations specific to their operations.
     - This plan shall be shared with and coordinated with the Contractor.
   - The Plan shall be revised throughout the course of the project to reflect changed conditions.
   - The Plan shall be maintained at the site, and available for review upon request.

b) Contents
   - At minimum, the plan shall contain:
     - Project site map
     - Street map of immediate area showing Project location that clearly identifies one-way and dead-end streets.
     - Building Plan, including a plan for each floor
     - Emergency notification list
     - Emergency notification procedures
     - Evacuation procedures
     - Evacuation route
     - Evacuation refuge area
     - How Employees will be trained on the contents of this plan
     - Intervals for refresher training

c) Emergency Contact List
   - The Contractor shall provide the SFMTA Project Management personnel and the OSM with an Emergency Contact List.
     - This list shall include 24-hour contact information for key project personnel.
     - The Contractor shall maintain this list throughout the duration of the contract, and provide a revised copy to all parties when made necessary by changes to personnel or their contact information.

4.16 ENVIRONMENTAL CONTROLS

a) Spills of hazardous materials (including cutting oil, fuel, solvents, antifreeze etc.) must be reported immediately to the appropriate regulatory agencies and to SFMTA Project Management personnel and the OSM. The party responsible for the spill is responsible for cleanup costs.

b) Cutting equipment must have secondary containment (drip pans, sandboxes).

c) Drums, jugs and other containers must have secondary containment.

d) All containers must be maintained in good condition, and must be appropriate for the materials to be stored in them.

e) All containers must be labeled with their contents and precautions for use.

f) Containers containing hazardous waste must be labeled “Hazardous Waste” in addition to listing their contents on the label.

g) Daily inspections of the Project to maintain work areas under its control and adjacent public right-of-ways in a safe condition, and remove all accumulations of debris and surplus materials must be performed by the Contractor to assure compliance with this section.

h) The Creating Employer is responsible for proper disposal of its hazardous wastes.
   - The City is the Generator. A copy of the completed Uniform Hazardous Waste Manifest must be provided by the Contractor (if applicable) and SFMTA.
   - Comply with requirements of NFPA 241 for removal of combustible waste material and debris

- Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of these types of materials in a lawful manner.

4.17 EQUIPMENT / TOOLS

a) Contractor equipment and tools must be in proper working condition and routinely (i.e. daily or prior to use) inspected for defects.

b) Any equipment or tool found to be damaged or defective must be removed from service and repaired before it can be returned to service.

c) Manufacturer's instructions shall be followed with respect to equipment/tool operation and training requirements.

d) Equipment is not to be used with loads that exceed the recommended rated capacity.

e) The Employer is to use only their equipment and tools, and not those of other Employers, unless Employees are properly trained and authorized.

f) Tools and equipment are to be used for their designated purpose.

g) Tools and equipment are to be used only by trained and authorized Employees.

h) Proper guards or shields must be installed on all power tools before use.

- All guards must be manufactured by and/or approved by the manufacturer for that particular piece of equipment.

i) The practice of "wedging or pegging" guards on circular saws or other equipment, rendering them non-functional, is not permitted.

j) No internal combustion vehicle or machinery is to be operated inside structures unless proper engineering controls have been implemented to minimize carbon monoxide levels.

- In such cases where vehicles or machinery are operated inside structures, carbon monoxide levels shall be monitored as often as required to ensure a safe work environment.

k) All material handling equipment must have an audible backup alarm.

l) Tools and equipment must be properly stored, secured and located away from unauthorized access.

m) For pneumatic power tools, all air hoses exceeding ½ inch inside diameter shall have a safety device (commonly known as an "OSHA valve" or "safety check valve) at the source of air supply or branch line origin (such as a manifold) to reduce pressure in case of hose failure.

4.18 EXCAVATIONS

a) The Contractor shall obtain an activity permit for excavations when required by the owner or local or state law.

b) Trenching or excavating activities must be under the supervision of a Competent Person.

c) The Contractor's materials for the protection of personnel (i.e., bracing, shoring, shielding, and trench boxes) must be in good condition and of proper dimensions/materials.

d) Excavations must be inspected at least daily by the Competent Person.

e) The Contractor's Competent Person must determine the soil classification (Type A, B, or C) to determine the appropriate type of protective system required for the excavation.

f) Excavated soils, materials or equipment are to be kept at least two feet from the edge of the excavation.

g) The Contractor must provide appropriate barricades to protect people from falling into the trench (lighted barricades must be provided at night).

h) Ladders or other means of egress must be provided by the Contractor for access and spaced within 25 feet of any worker inside the excavation when the depth of the excavation exceeds 4 feet (48").

i) Walkways are to be provided over any excavation or trench point that Employees may need to cross. Walkway must have handrails, mid-rails, and toe-boards when the excavation depth is 6 feet or more.

j) Where pedestrian traffic must be accommodated over excavations, suitable non-skid plates or other suitable material capable of withstanding at least twice the maximum intended load must be provided to serve as a pedestrian runway for safe passage.

- The edges of the runway shall be tapered to minimize trip hazards. In the alternative, the approach to the runway shall be tapered with a suitable and durable material or the runway set into the surface to minimize trip hazards.

k) Rescue equipment must be provided by the Contractor (full body harness and lifeline, breathing apparatus, basket stretcher, etc.) when hazardous atmospheric conditions are expected to exist.

l) Contractor must follow all regulations as outlined in the project Safety Standards, the Contract Documents, Federal and State OSHA regulations, and local requirements pertaining to trenching and excavating activities.

4.19 FALL PROTECTION

a) The Contractor shall submit a fall protection plan for all work exceeding six feet in elevation. The plan shall include a licensed (CA) engineer's approval as applicable. Documentation shall be prior to the start of work.

b) 100% Fall Protection shall be implemented by all trades for all fall exposures of six (6) feet or more.

c) Where a fall hazard exists, efforts must be made to eliminate the hazard; provide protection against the hazard; or establish alternative methods to control/monitor the hazard.

d) Rescue shall be addressed in the Employer's fall protection policies and fall protection training.

e) Training and Retraining

- Employers are required to provide training for any Employee who might be exposed to a fall hazard prior to the exposure or upon hiring. Documentation shall be maintained and available for review upon request.
- Training must include an explanation of the company's fall protection policies and safe work practices with general instructions and precautions; specific instruction where required; hazard identification and correction; selection and proper use of protective devices; and maintenance of equipment. Instruction should also include correct procedures for inspecting, erecting, disassembling, and maintaining fall protection systems used; and the Employee's role in fall prevention and protection.
- Retraining. When the Employer has reason to believe that any affected Employee who has already been trained does not have the understanding and skill required by paragraph (a) of this section, the Employer shall retrain each such Employee. Circumstances where retraining is required include, but are not limited to, situations where:
- Changes in the workplace render previous training obsolete; or
- Changes in the types of fall protection systems or equipment to be used render previous training obsolete; or
- Inadequacies in an affected Employee's knowledge or use of fall protection systems or equipment indicate that the Employee has not retained the requisite understanding or skill.

f) Methods of Fall Protection

- Methods of fall protection include:
  - o Guardrails and toeboards

    Covers for floor and roof openings, pits, trap-doors, and temporary floor openings.
    Personal Fall Arrest Systems.
    Personal Fall Restraint Systems.
    Positioning Device Systems.

Safety Nets.
Scaffold Platforms.
Roof Warning Lines

- Fall Protection Plans, Controlled Access Zones, Safety Monitor Systems and Controlled Decking Zones require the approval of OAR and the OSM for their use.

g) The only allowable type of body restraint system allowed will be a full body harness with a lifeline, and lanyard. Safety belts are not permitted for fall arrest or fall restraint.

h) All personal fall arrest, personal fall restraint and positioning device systems shall be labeled as meeting the requirements contained in ANSI A10.14-1991.

i) Personal Fall Arrest Systems shall (a) limit the fall distance to a maximum of 6 feet and (b) prohibit the Employee from contacting a lower level or structural element.

- Where practicable, the anchor end of the lanyard shall be secured at a level not lower than the Employee's waist.

j) Lifelines and anchorages shall be capable of supporting a minimum dead weight of 5,000 pounds.

k) Lanyards and vertical lifelines shall have a minimum breaking strength of 5,000 pounds.

l) Anchorages used for attachment of personal fall arrest equipment:

- shall be independent of any anchorage being used to support or suspend platforms, and
  - capable of supporting at least 5,000 pounds per Employee, or
  - part of a complete personal fall protection system used under the supervision of a qualified person that maintains a safety factor of at least two (2).

m) The use of non-locking snap-hooks is prohibited.

n) Body belts shall not be used for fall protection or fall restraint.

o) Positioning Device Systems

- Positioning devices shall be rigged such that an Employee cannot free fall more than 2 feet.
- Positioning device systems shall be inspected prior to each use.
- Anchorage points for positioning device systems shall be capable of supporting two times the intended load or 3,000 pounds, whichever is greater.

p) Personal Fall Restraint

- A Personal Fall Restraint System shall not allow the Employee to fall.
- Anchorage points used for fall restraint shall be capable of supporting 4 times the intended load.
- Personal Fall Restraint protection shall be rigged to allow the movement of Employees only as far as the sides of the working level or working area.

4.20 FIRE PROTECTION AND PREVENTION

a) The Contractor must develop a fire protection program to be followed throughout all phases of construction.

- The program shall include the most stringent of OSHA, local Fire Marshal, and/or local Fire Code requirements.

b) Firefighting equipment must be conspicuously located or conspicuously marked.

c) A fire extinguisher, rated not less than 2A, shall be provided for each 3,000 square feet of floor and fraction thereof. Where the floor is less than 3, 000 square feet at least one fire extinguisher is required.

d) The clear and unobstructed travel distance from any point of the protected area to the nearest fire extinguisher shall not exceed 75 feet.

e) In multi-story buildings, at least one fire extinguisher shall be provided on each floor and located adjacent to the stairway.

f) A fire extinguisher, rated not less than 10B, shall be provided within 50 feet of wherever more than 5 gallons of flammable or combustible liquids are stored.

g) Portable fire extinguishers shall be fully charged, inspected monthly and serviced annually.

h) Storage of more than 25 gallons of flammable liquids shall be in a NFPA approved storage cabinet. Not more than 120 gallons of Class I, II, or IIIA liquids may be stored in a storage cabinet.

i) A fire extinguisher, rated not less than 20-B, shall be located outside of, but not more than 10 feet from the door opening of storage rooms.

j) A portable fire extinguisher rated at least 10B:C shall be kept near operations where fuel gas cylinders/bottles are being used.

k) Portable fire extinguisher shall be readily available for use where temporary heating devices are used.

l) "No Smoking" signs shall be posted as required by operations or material exposures.

m) The Owner reserves the right to designate no smoking areas on the project.

4.21 FIRST AID

a) Each Employer shall ensure that all supervisors and at least one employee on each crew shall have a valid certificate in first-aid training from the American Red Cross, Mine Safety and Health Administration, or equivalent training program that can be verified upon request by documentary evidence. This training shall include CPR.

b) Each Employer shall provide at least one appropriately sized and stocked first-aid kit in a weatherproof container.

- Weekly inspections shall be made of all first-aid materials and ensure that the expended items are replaced.

c) Eye wash capabilities shall be provided by the exposing Employer as required by the MSDS for products used at the job site.

d) Each Contractor and Subcontractor shall submit (via the Contractor) to the OAR and the OSM a list of First Aid / CPR trained personnel prior to starting work.

- Each list shall be clearly dated, and updated as required throughout the duration of the contract period. Each time the list is updated, a copy shall be provided to the OAR and the OSM.

4.22 FLAMMABLES AND COMBUSTIBLES

a) The Employer is required to supply extinguisher, fire blankets, and other sufficient fire protection devices for the immediate work area where flammable and combustible material is stored or used. All fire extinguishers must be provided by the Contractor and rated at a minimum of 2A, 20BC.

- Fire extinguishers shall be checked to verify that they are fully charged.

b) All Employer supplied flammable liquids must be stored in approved safety containers.

- All containers must be properly labeled and stored when not in use.
- Only approved metal safety cans will be allowed for flammable storage.

c) The Employer shall identify non-compatible materials in advance, and provide for separate storage as required.

d) Storage in excess of 25 gallons of flammable liquids or 60 gallons of combustible liquids shall be within cabinets constructed to the requirements of NFPA 30.

e) All outside storage areas must be at least 20 feet from any building.

f) For roof work:

- No more than a one-day supply of flammables may be placed on the roof during working hours.

- All flammables must be removed from the roof at the end of each workday by the Contractor.
- At least two extinguishers appropriate for the type and quality of flammable materials present must be provided if flammables are present

g) All Contractor-supplied flammable and combustible materials must be kept away from sparks, heaters, and any other heat source.

4.23 FLAMMABLES AND COMBUSTIBLES

a) Only drivers authorized by the Employer and trained in the safe operations of industrial trucks shall be permitted to operate forklifts.

b) Operator training and posting of information regarding forklift operations shall be in accordance with applicable OSHA Standards.

c) The Employer shall certify that each Operator has been trained and evaluated.

d) All forklifts and industrial trucks and tractors shall be equipped with an audible back-up alarm which can be normally be clearly heard from a distance of 200 feet

- In congested areas or areas with high ambient noise which obscures the audible alarm, a signal person in clear view of the operator shall direct the backing operation.

e) The rated capacity of all industrial trucks and industrial tractors shall be displayed at all times on the vehicle in such a manner that it is readily visible to the Operator.

f) Every industrial truck and tractor shall be equipped with operable brakes, a parking brake, and a horn.

g) Seat belts shall be provided on industrial trucks and tractors where rollover protection is installed. Employees shall be instructed in their use.

h) No riders shall be permitted on vehicles unless the vehicles are equipped with adequate riding facilities.

i) Employees shall not ride on, or be elevated on the forks of lift trucks.

j) Industrial trucks may be used to elevate Employees in accordance with applicable OSHA Standards and manufacturer's recommendations using appropriate personnel platforms.

k) Employees shall not be allowed to stand, pass, or work under the elevated portion of an industrial truck, loaded or empty.

l) Drivers shall check the vehicle at least once per shift. Attention shall be given to tires, horn, lights, battery, controller, brakes, steering mechanism, cooling system, and the lift system (forks, chains, cable and limit switches).

m) Vehicles shall not exceed the authorized or safe speed, always maintaining a safe distance from other vehicles, keeping the truck under positive control at all times.

n) The driver shall slow down and sound the horn at cross aisles and other locations where vision is obstructed.

o) Grades shall be ascended or descended slowly.

p) The forks shall always be carried as low as possible, consistent with safe operation.

q) When leaving a vehicle unattended, the power shall be shut off, brakes set, the mast brought to the vertical position, and forks left in the down position.

r) Forklifts (Industrial Trucks and Tractors) shall not be loaded in excess of their rated capacity.

4.24 HAZARD COMMUNICATION

a) The Contractor shall maintain (a) a copy of all Material Safety Data Sheets, and (b) a chemical inventory list, for all hazardous substances used at the jobsite by their firm, as well as for all hazardous substances used at the jobsite by all Subcontractors regardless of tier.

- The location of the Project's Material Safety Data Sheets and chemical inventory list shall be communicated to the OAR, the OSM,

- All hazardous materials identified by OSHA as a carcinogen or reproductive hazard as subject to use restriction and/or prohibition from use on SFMTA facilities. In addition, the Contractor shall provide a written plan of how their employees will be protected from exposure of these materials. In general known carcinogenic materials in any form or application are not allowed to be brought and used at a construction site. In the event that hazardous materials musts be used, it will be prudent for MTA to issue a permit after the plan is reviewed. . Please note that if the hazardous materials are flammable or combustible. The Contractor will need to obtain, pay for, and keep current a Flammable/combustible material storage permit from SFFD; notification shall be made and a permit issued one week before the material is brought on site.

b) In accordance with the provisions of the Hazard Communication Standard, each Employer must have a comprehensive written Hazard Communication Program which includes:

- A list of hazardous substances known to be on site.
- Methods the Employer will use to inform Employees of the hazards of non-routine tasks.
- On Multi- Employer job sites, the program shall include the methods Employer will use to inform other Employers of any precautionary measures to protect their Employees.
- The methods used to provide other Employer (s) with access to Material Safety Data Sheets.
- The methods the Employer will use to inform the other Employer (s) of the labeling system in use.

c) The Contractor must submit a copy of its Hazard Communication Program to the OAR and the OSM.

d) Each Employer must have a job site binder which contains the following items:

- A comprehensive written Hazard Communication Policy.
- A chemical inventory listing all hazardous materials brought onto or used on the project site by the Employer.
- Material Safety Data Sheets (MSDS's) for all hazardous materials used on the project site.

e) The Employer shall ensure that all Employees have received training in the safe use of hazardous materials; and that Employees are able to read and understand the information on Material Safety Data Sheets. The training shall include at least:

- Methods and observations that may be used to detect the presence or release of a hazardous chemical.
- The physical and health hazards of the chemicals used in the work area.
- Measures Employees can take to protect themselves from the hazards.
- Details of the hazard communication program, including the labeling systems and the use of MSDS.

f) The Employer shall ensure that all containers used on the construction site are properly labeled as to their contents, including gas and diesel containers.

g) The Employer will provide a Material Safety Data Sheet (MSDS) for any hazardous substance that will be used on the job site to the Contractor prior to its use.

4.25 HEATERS, PORTABLE

a) All heaters must be Factory Mutual and/or Underwriters Laboratory approved.

b) The Employer must notify the Contractor to review and approve all liquid/gas fueled Contractor heaters brought onto the site prior to use.

- The use of liquid/gas fueled heaters inside of buildings requires Contractor approval.

c) Tent Heater use requirements:

- Use only in tents made of fire resistant material.
- Avoid contact with heating elements or other hot parts.

- Keep flammable materials and clothing away from hot equipment.
- Never use heaters in a utility hole or in a tent that covers a utility hole.
- Ensure adequate ventilation is provided when using a tent.
- Secure a fire extinguisher within the tent in an accessible location.

4.26 HEAVY EQUIPMENT / MATERIAL HANDLING AND EARTHMOVING EQUIPMENT

a) Equipment shall be maintained in good working order. All vital parts such as motors, chassis, blades, bladeholders, tracks, drives, hydraulic and pneumatic mechanisms, and transmissions must be inspected each day.

b) Whenever visibility conditions warrant additional light, all vehicles, or combinations of vehicles, in use shall be equipped with at least two headlights and two taillights in operable condition.

c) All vehicles, or combination of vehicles, shall have brake lights in operable condition.

d) All vehicles shall be equipped with an adequate audible warning device (horn) at the Operator's station.

e) All vehicles must have a back-up alarm that is normally audible for a distance of 200 feet.
   - In congested areas or areas with high ambient noise which obscures the audible alarm, a signal person in clear view of the operator shall direct the backing operation.

f) All vehicles with cabs shall be equipped with windshields and powered wipers.

g) Vehicles operating in areas or conditions that causes fogging or frosting of windshields shall be equipped with operable defogging or defrosting devices.

h) Cracked or broken windshields shall be promptly replaced.

i) Windshields and mirrors shall be kept clean such that vision is not compromised or obstructed.

j) Seat belts with approved proper anchorage points shall be installed in all haulage, earth moving, and material handling heavy equipment.

k) The Employer shall ensure Employee use of seat belts on motor vehicles.

l) Trucks with dump bodies shall be equipped with positive means of support, permanently attached, to prevent accidental lowering of the body while maintenance or inspection work is being done.

m) Operating levers controlling hoisting or dumping devices on haulage bodies shall be equipped with a latch or other device that will prevent accidental starting or tripping of the mechanism.

n) Trip handles for tailgates of dump trucks shall be so arranged that, in dumping, the Operator will be in the clear.

o) All rubber-tired motor vehicle equipment shall be equipped with fenders.

p) All vehicles in use shall be checked at the beginning of each shift for defects in:
   - Service brakes, trailer brake connections, parking brake system, and emergency stopping system (brakes).
   - Tires, horn, steering mechanism, seat belts, operating controls and safety devices.
   - Lights, reflectors, windshield wipers, defrosters, and fire extinguishers.

q) Before starting a job, the Operator shall be given instructions regarding the work to be done.

r) Before starting the motor, the Operator shall check to make sure that all operating controls are in the neutral position.

s) Before starting the equipment, or moving the equipment after re-entering the cab, the Operator shall walk entirely around the equipment to make sure no other personnel, equipment or material will be struck.

t) Contractor shall ensure that Operators of heavy equipment wear appropriate hearing protection devices.

u) At no time shall a piece of equipment be left unattended if the machine is on an inclined surface or on loose material. Operators who momentarily leave the cab of their equipment are required to be within 25 feet of the machine and have visual contact at all times.

v) Block or chock wheels when parking on inclines.

w) Machines shall be operated at speeds and in a manner consistent with conditions on the project.

x) No Employee other than the Operator shall ride on equipment.

y) During refueling operations equipment motors shall be turned off. Smoking is prohibited during refueling.

z) If possible, equipment shall be driven entirely off the roadway at night.

aa) Unattended equipment must be left in a secure area not accessible to members of the public or unauthorized third parties.

- . Keys shall be removed from unattended equipment.

bb) Spotters and/or Flaggers must be used when equipment Operator's view is obstructed whether moving forward or backward.

4.27 HORIZONTAL BORING / PIPE JACKING

a) Prior to boring/jacking operations the Employer must contact the regional USA, Underground Services Alert, to ensure all owners of underground facilities in the area of are notified to mark their utility locations.
b) The Employer shall locate all buried utilities before commencing boring/jacking operations.
c) Open a guide hole (bore slot) over any existing utility that is in line with the bore shot.
d) Excavate bore slot, bell hole and guide holes as necessary.
e) If resistance is encountered during the boring/jacking operation, cease the boring operation immediately and excavate at the point of resistance to determine necessary action.
f) The Operator must be trained in the use of the boring/jacking machine.
g) At least two crewmembers must operate the bore motor at all times.
h) Stay clear of rotating bore pipe and the rotating head of boring machine. Loose clothing, long hair, or gloves can cause injury if caught in rotating bore pipe.
i) Only one crewmember shall transmit signals to the Operator.
j) Do not hold rotating bore pipe with hands or feet.
k) Operate the boring machine only at slow RPM's when used to connect or disconnect bore pipe.

4.28 HOUSEKEEPING

a) All construction materials must be stored in an orderly manner.

b) All exits and access ways must be kept unobstructed.

c) All work areas must be cleaned and free of debris.

d) Puncture hazards (nails, staples, fasteners, etc.) created by stripped formwork, scrap lumber, pallets, shipping materials, etc. shall be eliminated or controlled by the creating Employer

e) Metal containers with covers must be provided for disposal of oily and paint soaked rags.

f) Maintain all exits.

g) Emergency exits must be available.

h) Walkways and sidewalks must be kept free of construction materials, debris, dirt, tools and extension cords.

i) Where steel plates are used to bridge excavations or other similar type construction activities in walkways or sidewalks, the leading edges of the steel plates must be tapered or feathered with temporary asphalt or other suitable materials to prevent trip hazards.

4.29 LADDERS

a) Type II (Commercial) and Type III (Household) ladders are prohibited.

b) The Employer shall provide a training program for each Employee using ladders and stairways, as necessary. The program shall enable each Employee to recognize hazards related to ladders and stairways, and shall train each Employee in the procedures to be followed to minimize these hazards.
   - Retaining shall be provided for each Employee as necessary so that the Employee maintains the understanding and knowledge acquired through compliance with this section.

c) Broken or defective ladders must be immediately removed from service.

d) Employees must maintain a 3-point contact while climbing ladders.

e) Job-Made ladders shall be constructed in accordance with OSHA provisions.

f) All types of ladders must be inspected at least daily for:

- cracks, splits, splinters, and decay;
- protruding nails and loose rivets;
- loose, bent or broken braces, tie rods, guide irons, locks, pulleys and strand hooks; and
- broken, worn or defective spurs and pads.

g) Extension ladders
   - Portable ladder feet shall be placed on a substantial base.
   - Straight and extension ladders must be tied off or secured to prevent displacement.
   - Metal ladders must not be used near energized equipment.
   - No more than one Employee is allowed on a ladder.
   - Ladders are not to be used for skids, braces, workbenches, or any other purpose other than for personnel climbing.
   - All straight and extension ladders must be equipped with nonskid safety feet.
   - Ladders must extend no less than 36 inches above the landing.
   - Ladders shall be used at such a pitch that the horizontal distance from the top support to the foot of the ladder is about one-quarter of the working length of the ladder.

h) Step Ladders
   - Stepladders must be fully open and the spreader set in the open and locked position.
   - Do not climb, stand or sit on the top two rungs.
   - Do not lean a stepladder against a wall in the unopened position.
   - Always ascend and descend facing the ladder.
   - Do not exceed the designated weight capacity.

4.30 LEAD

a) The Contractor shall comply with Cal/OSHA Title 8, Section 1532.1 (Lead in Construction) and Title 17 of the California Department of Public health (CDPH).

b) The Contractor shall identify any Lead Based Paint (LBP) within the proposed scope of work PRIOR to any construction, remodeling, or demolition activities. Only CDPH certified inspectors/assessors may conduct lead paint, dust or soil sampling.

c) The Contractor shall identify any sheet lead, such as in laboratories, x-ray facilities, prior to commencing demolition or construction activities.

d) The Contractor shall characterize the lead–containing waste and arrange for disposal of the hazardous waste stream (e.g., paint chips), through an approved waste disposal facility and obtain the EPA Hazardous Waste Generator Identification number.

e) The Contractor/Subcontractor that may come in contact with lead–containing materials shall ensure that Employees are trained in lead awareness.

f) All Employees and supervisors who perform lead abatement work shall have the CDPH and OSHA current training certificate by an approved trainer.

4.31 LIQUIDS – CORROSIVE ACIDS AND CAUSTICS

a) Do not store, handle, apply or use acids or caustics until a proper procedure has been established.
b) Never add water to acid - if dilution is needed, add acid to water.
c) Emergency eyewash and/or shower facilities must be immediately available to any person working with acids and caustics.
d) Proper personal protection must include a face shield, apron, gloves and sleeve lets as well as any other equipment deemed necessary by the MSDS or manufacturer's usage instructions

4.32 LOCKOUT – TAGOUT / CONTROL OF HAZARDOUS ENERGY

a) The Employer must have a written Lock-out/Tag-out program for the control of hazardous energy that meets or exceeds the OSHA standards.
b) Equipment, energized systems, and pressurized systems shall be completely de-energized before beginning the Lock-out/Tag-out procedure and subsequent cleaning, servicing, or adjusting operations.
c) Moveable parts shall be mechanically blocked or locked out prior to cleaning, servicing, or adjusting operations.
d) Equipment that has lockable controls or that is readily adaptable to lockable controls shall be locked out or positively sealed in the off position.
e) Accident prevention signs or tags shall be placed on the controls of equipment, machines, and prime movers during repair work.
f) All Employers must affix their own lock/tag.
g) Locks and/or tags must be removed at the end of the job by the originator. Never remove another person's tag or lock to operate a switch, valve, or device.

4.33 LOCATING UNDERGROUND UTILITIES BEFORE EXCAVATING

a) The Employer must locate buried utilities before digging.
    - Prior to excavation, all known owners of underground facilities in the area shall be notified by calling the regional USA, Underground Services Alert.
b) The nearest shut off valve or control point for known utilities shall be identified on a site plan to be maintained by the Contractor.
c) The Employer shall check the entire job site for visual signs of substructures. This includes such items as manhole covers, water meter boxes, ditch lines, pavement patches, previous location marks, pole risers, and the obvious absence of overhead utilities.
d) The Employer must expose substructures by hand after locations are determined.
e) The Employer shall be careful not to damage the utility substructure by scraping, hammering, or other forms of excavation or locating efforts.
f) The Employer shall be aware of the possibility of joint use of an excavation/trench for power, telephone, gas, fiber optics, cable, etc.

4.34 MOTOR VEHICLES

Text messaging while operating motor vehicles is strictly prohibited.

While operating motor vehicle cell phone use is only permitted with hands free devices.

All Employees driving job site motor vehicles shall have a valid driver's license for the state in which the Employee resides and for the class vehicle driven.

Drivers of vehicles over 26,000 pounds GVW are required by Federal and State Departments of Transportation regulations to possess a Commercial Drivers License (CDL).

Drivers on the project site shall obey all street and highway speed and traffic laws.

Drivers shall check the mechanical condition of their vehicles at least daily.

Drivers are required to observe the "right of way" rule. Yield to other drivers whose driving actions demand the right-of-way.

Drive defensively. Anticipate what the other driver may do. Leave yourself an out.

Drivers shall keep a distance of AT LEAST one vehicle length for each 10 miles of speed between their vehicle and the vehicle in front of them.

Employees driving and riding in Contractor vehicles must wear seat belts.

Block or chock vehicle wheels when parking on inclines.

All passengers in motor vehicles must be seated and within the confines of the vehicle.

The site speed limit is 5 mph. Obey all traffic signs.

All vehicles must be shut off when unoccupied.

Pedestrians have the right of way.

Parking shall be in specified areas only. Do not block entrances and do not park in reserved spaces.

The Contractor is responsible for the stability of any material being hauled.

Employees are not allowed to ride in the open bed of a pickup truck.

Unauthorized passengers shall not be transported in any vehicle or on any equipment at any time.

4.35 ORIENTATION

Orientation shall take place for all Employees new to the site in a manner readily understandable to the individual Employee. Orientation content should be adjusted accordingly for Employees transferred to the Sponsor's site. It is the responsibility of the General Contractor to conduct this training.

All orientations shall be documented. Records shall be maintained at the project available for review by the OSM upon request.

Topics may include, but are not limited to:

a) Type and history of the project, including Owner and final product
b) Explanation of Sponsor's Safety Philosophy
c) Sponsor's Safety Rules
d) Employer's Safety Rules (to include the Code of Safe Practices)
e) Sponsor's Site-Specific Safety Rules
f) Project map, including entrances, exits, and parking areas
g) Emergency procedures
h) Evacuation procedures
i) Fire protection and prevention procedures and practices – initial site-specific training
j) Incident reporting procedures
k) Near-miss Incident reporting procedures
l) Procedures to report unsafe acts and/or conditions
m) Location of First-Aid kits, clinic(s) and hospital
n) Location of project Bulletin Board
o) Day, time and location of Safety Meetings
p) Personal Protective Equipment requirements, including how, when and where to obtain/replace
q) Project dress code
r) Hazard Communication training (site-specific)
s) Fall Protection – initial site-specific training

t) Confined Spaces – initial site-specific training
u) Electrical Safety – initial site-specific training
v) Ladder safety – initial site-specific training
w) Scaffold safety – initial site-specific training
x) Hot work safety – initial site-specific training
y) Control of hazardous energy (including Lockout-Tagout) – initial site-specific training
z) Site vehicle safety requirements
aa) Housekeeping requirements

4.36 OVERHEAD UTILITIES

a) The Contractor shall identify all overhead utilities prior to the start of any work.
b) The Contractor shall identify the voltage carried by each power line, and identify the minimum required clearances prior to commencing work in the vicinity of the line.
   - Identifications of all lines and minimum clearances shall be documented on a site plan that is made available to all Employees, Subcontractors, vendors and suppliers.
   - This site plan shall include identification of all lines that are within 42 feet of the perimeter of the site.
   - Temporary utilities shall be added to the site plan as required.
   - Proper distances must be maintained from all overhead power lines, such as by the use of a signal person.
   - A minimum clearance distance of 10 (ten) feet shall be maintained by apparatus or equipment from power lines of 50Kva or less.

4.37 PERMITS

a) Unless otherwise relieved via contract provisions, each Employer shall obtain relevant permits pertinent to the safety of Employees and operations.
b) Permits shall be available for review at the job site upon request of the OSM.
c) Contractors must obtain and post Cal/OSHA Activity Permits for the following construction activities:
   - Construction of trenches or excavations which are 5 feet or deeper and into which a person is required to descend.
   - Construction of any building, structure, scaffolding or falsework more than 3 stories high, or the equivalent height (36 feet).
   - Demolition of any building structure, or dismantling of scaffolding or falsework more than 3 stories high, or the equivalent height (36 feet).
   - Erection or dismantling of vertical shoring systems more than 3 stories high, or the equivalent height (36 feet).
   - Use of fixed or mobile tower cranes.

4.38 PERSONAL PROTECTIVE EQUIPMENT

a) The Employer shall ensure that Employees are trained in the proper use, care and sanitation, and limitations of Personal Protective Equipment (PPE) in accordance with applicable OSHA Standards and manufacturer's instructions and recommendations.
b) Employers are required to assess the workplace to determine if hazards that require the use of personal protective equipment are present or are likely to be present.
c) Employers must select and have affected Employees use properly fitted personal protective equipment (PPE) suitable for protection from existing hazards.
d) Employees must wear hard hats complying with or exceeding the requirements of ANSI Z89.1-1986 while on the job site.

e) 4.1 Metal hard hats in addition to “Cowboy” and similar novelty hard hats are not permitted.

f) Each Employer is responsible to supply required personal protective equipment to their Employees.

g) Safety glasses shall be worn by all personnel at all times while on the project.
   - All safety glasses, goggles, and face shields must meet or exceed the requirements of ANSI Z87.1-1989.
   - The addition of side shields to prescription safety glasses is not permitted unless they meet the ANSI standards.
   - Safety eyewear manufactured to meet or exceed the requirements of ANSI Z87.1-2003 must provide High Impact protection.

h) Face shields must be worn in conjunction with safety glasses when grinding, chipping, jack hammering, and power sawing, or conducting other tasks that involve serious face/eye hazards.

i) Sturdy work boots are required at all times on the job site.

j) Respiratory, hearing, face, skin, and hand protection are required for any applicable areas and operations on the job site.

k) Employees who are required to wear respiratory protection must receive a medical assessment of their physical ability to wear the equipment, be properly fit tested, and be trained in the use, care, maintenance, and limitations of the respiratory device.

l) Tennis shoes, running shoes, casual street shoes, sandals or shoes made of other thin material shall not be worn by Contractor Employees on the job site.

m) Foot protection shall be required for workers who are exposed to foot injuries from electrical hazards, hot work, corrosive or poisonous substances, falling objects, crushing or penetrating action, which may cause injuries, or who are required to work in abnormally wet conditions.

n) High visibility vests, shirts or jackets are required by all employees at all times.

4.39 POSTING REQUIREMENTS

a) The Contractor shall be required to construct a weatherproof job site bulletin board. Federal and State regulations require Employers to conspicuously display <u>all</u> required posters at locations where Employees report each day.

b) At minimum, the following items shall be posted:
   - Industrial Welfare Commission’s Order Regulating Wages, Hours, and Working Conditions
   - Pay Day Notice
   - OSHA “Job Safety and Health Protection”
   - Employer’s “Code of Safe Practices” / Safety Rules
   - Discrimination in Employment is Prohibited by Law
   - Sexual Harassment Poster
   - Americans with Disabilities Act (ADA)
   - Notice of Compensation Carrier
   - Notice to Employees of Unemployment Insurance and Disability Insurance
   - Cal/OSHA Operating Rules for Industrial Trucks
   - Emergency Telephone Numbers

4.40 POWDER-ACTUATED TOOLS

a) Powder-actuated tools must meet or exceed the requirements of ANSI A10-3.1977.

b) Only trained workers holding a valid Operator’s card can use a powder-actuated tool.

c) Containers for powder-actuated tools must be lockable and bear the label POWDER-ACTUATED TOOL on the outside. The container must be kept under lock and key storage.

d) The following must be provided with each tool:

- Operating and service manuals.
- Power load chart.
- Inspection-Service record.
- Repair and servicing tools.

e) Eye or face protection is required for Operators and assistants.

f) Tools must be inspected prior to use. Defective tools must not be used.

g) Powder-actuated tools must not be left unattended.

h) Powder-actuated tools must be unloaded if work is interrupted. Tools must not be loaded until ready for use.

i) On misfire, the tool must be held in place for 30 seconds.

j) Misfires shall be placed in a can of water.

k) Different power loads must be kept in separate compartments.

l) Warning signs must be posted bearing the words: "POWDER-ACTUATED TOOLS IN USE" within 50 feet of the point of use.

4.41 PUBLIC PROTECTION PLAN

a) The Public Protection Plan shall consider and include at minimum the following items as they apply to the project: (NOTE: this is neither intended nor represented to be a complete list.)

- Noise
- Dust, Fumes, Mists, Smoke, Vapors
- Traffic hazards
- Pedestrian hazards
- Radiation (including lasers, x-rays, and welding rays)
- Machinery and vehicles
- Falling objects
- Wind-borne objects
- Security
- Utilities
- Hazardous Materials and Hazardous Substances (including use and storage)
- Response to incidents involving the public
- Public demonstrations or protests

b) The Public Protection Plan shall at minimum include the following components:

- Policy statement
- Assignment of responsibilities
- Identification of existing and predictable public concerns
- Provisions to monitor and inspect the implementation of the provisions of the Public Protection Plan
- Provisions for incident investigation
- Hazard abatement procedures

4.42 SANITATION

a) The Contractor must provide in a clean and sanitary condition:

- all potable water for drinking,
- adequate toilet facilities,
- hand wash facilities as required by the Material Safety Data Sheet or state standards

- appropriate containers for disposal of garbage, and
- any necessary insect control for items 1.1 to 1.4 of this subsection.

b) A minimum of one separate toilet facility shall be provided for each 20 Employees or fraction thereof of each sex.

c) Toilet facilities shall be kept clean, maintained in good working order, designed and maintained in a manner that will assure privacy, and provided with an adequate supply of toilet paper.

d) Employees shall not drink the water involved with the Sanitation process while within the plant.

4.43 SCAFFOLDS

a) Scaffolds shall be erected, moved, dismantled or altered only under the supervision and direction of a Competent Person qualified in scaffold erection, moving, dismantling or alteration.

b) Contractors shall provide a copy of the competent person evaluation and the owner will sign off on scaffolds that are erected prior to use.

c) The Employer shall have a Competent Person determine the feasibility and safety of providing fall protection for Employees erecting or dismantling supported scaffolds. Fall protection is required for Employees erecting or dismantling supported scaffolds where the installation and use of such protection is feasible and does not create a greater hazard.

d) The Employer shall have each Employee who performs work while on a scaffold trained by a person qualified in the subject matter to recognize the hazards associated with the type of scaffold being used and to understand the procedures to control or minimize those hazards. The training shall include the following topics, as applicable:

- the nature of any electrical hazards, fall hazards, and falling object hazards in the work area,
- the correct procedures for dealing with electrical hazards
- the correct procedures for erecting, maintaining, and dismantling the fall protection and falling object protection systems being used
- the proper use of the scaffold, including the proper handling of materials on the scaffold
- the maximum intended load and the load-carrying capacities of the scaffold
- any other pertinent procedures or safety requirements

e) The Employer shall have each Employee who is involved in erecting, disassembling, moving, operating, repairing, maintaining, or inspecting a scaffold trained by a Competent Person to recognize any hazards associated with the work in question. The training shall include the following topics, as applicable:

- the nature of scaffold hazards
- the correct procedures for erecting, disassembling, moving, operating, repairing, inspecting and maintaining the type of scaffold in question
- the design criteria, maximum intended load-carrying capacity, and intended use of the scaffold
- any other pertinent procedures or safety requirements

f) When the Employer has reason to believe that an Employee lacks the skill or understanding needed for safe work involving the erection, use or dismantling of scaffolds, the Employer shall retrain each such Employee so that the requisite proficiency is regained.

g) Handrails, mid-rails and toe-boards are required on all scaffolds over six feet high.

- If the guardrail system is incomplete or missing, personal fall protection is required.

h) A ladder or other acceptable means for access must be provided

i) Wheels must be locked on rolling scaffolds before use.

- There is no riding of manually propelled scaffolds.

j) All connections, including casters, on rolling scaffolds shall be pinned.

k) The Contractor must keep the platform load within the safe platform work load limit.

l) Scaffolds must be erected level on a firm base. When the scaffold is resting on earth or other such material, the uprights shall rest on and be secured to the equivalent of a 2-inch by 10-inch by 10-inch wood base.

m) Suspended scaffolds must have adequate anchorage points. Occupants shall have a full body harness, lifeline and deceleration device that must be attached to a separate anchorage point than that of the scaffold prior to stepping out onto any suspended scaffold.

n) Scaffold planks must be laid tight and secured to prevent movement. Planks must overlap between 6 and 12 inches over the scaffold supports.

o) A stair tower or built-in stair/ladder system shall be provided for access to all scaffolds four frames or more in height.

p) All scaffolds must be inspected and tagged to identify that they meet the requirements for use by a Competent Person prior to initial use, before each work shift, and after any event that could affect the structural integrity or safety of the scaffold. Scaffolds that are not tagged shall not be used.

4.44 STEEL ERECTION

a) No building, structure, or part thereof, or any temporary support shall be loaded in excess of its designed capacity.

b) Trusses and beams shall be braced laterally and progressively during construction to prevent buckling or overturning.

c) During placing of structural members, the load shall not be released from the hoisting line until the members are secured with not less than two bolts drawn up wrench tight.

d) Where skeleton steel is being erected, a tightly planked and substantial floor shall be maintained within two stories or 30 feet, whichever is less, below and directly under that portion of each tier of beams on which any work is being performed.

e) When connecting beams at the periphery or interior of a building or structure where the fall distance is greater than six (6) feet, the Connector shall be provided with and use appropriate personal fall protection equipment in accordance with OSHA requirements.

- Connector means an Employee who, working with hoisting equipment, is placing and connecting beams or other structural members.

f) When performing work other than connecting, Employees shall be provided and use personal fall protection equipment in accordance with OSHA requirements where the fall distance is greater than six (6) feet.

g) Open web steel joists shall not be placed on any structural steel framework unless such framework is safely bolted or welded.

h) Containers shall be provided for storing or carrying rivets, bolts, and drift pins, and secured against accidental displacement when aloft.

i) When bolts or drift pins are being knocked out, means shall be provided to keep them from falling.

j) Impact wrenches shall be provided with a locking device for retaining the socket.

k) Connections of equipment used in plumbing-up shall be properly secured.

l) Turnbuckles shall be secured to prevent unwinding while under stress.

m) Plumbing-up guys shall be removed only under the supervision of a Competent Person.

n) Employees working above grade or any surface and exposed to protruding reinforcing steel or other similar projections shall be protected against the hazard of impalement by the use of guardrails, or approved fall protection systems, or protective covers.

o) Exposed edges of all temporary planked or temporary metal decked floors at the periphery of the building, or at interior openings, such as stairways and elevator shafts shall be protected by a single 3/8-inch minimum diameter wire rope located between 42 and 45 inches above design finish floor height. Mid-rail protection shall be installed at the completion of the installation of decking.

p) Employees shall be trained in accordance with applicable OSHA standards and project-specific requirements.

4.45 TAR AND MELTING POTS

a) Any melting chamber must be vented and must have a working thermometer

b) No melting pots or tar kettles may be located on roof surfaces. All melting pots must be on the ground outside, and at least 25 feet from any building.

c) Pipelines shall be adequately braced or supported to prevent collapse.

d) Barricades must be provided when hot liquids are present overhead on a roof or upper floor.

e) Buckets containing hot asphalt or pitch shall not be carried on ladders.

f) A fire extinguisher shall be kept near each kettle in use. Extinguisher capacity shall be at least:

- Less than 150 gallon kettle – 8:B.C.
- 150 to 350 gallon kettle – 16:B.C.
- Larger than 350 gallon kettle – 20:B.C.

g) At a minimum, an 8:BC fire extinguisher shall be kept near each kettle in use.

h) Kettle and tanker pumps shall be provided with a means of stopping the flow of hot asphalt or pitch manually from the rooftop in emergencies.

i) Pumper pipelines shall be securely fastened at rooftop and shall not be supported by ladders used for access.

4.46 TUNNELS AND UNDERGROUND CONSTRUCTION

a) Contractor shall provide a CAL-OSHA Certified Safety Representative and a CAL-OSHA Certified Gas Tester as required by the Division.

b) At least one designated person must be on duty outside of all tunnels whenever anyone is working underground. This person's duties shall not interfere with his/her ability to secure aid for those persons underground in case of emergency

c) A check-in/check-out procedure or other method is be provided at the surface that will ensure that aboveground personnel can accurately determine the number and identity of individuals underground in case of an emergency

d) All tunnels, shafts, and general underground work areas must be illuminated by an electric lighting system or natural light, equivalent to at least five-foot-candles intensity and ten-foot-candles at the heading area.

e) Lasers shall be located and targeted at levels above the levels of workers' sight when possible

f) Ensure that all supervisors and at least one employee on each crew shall have a valid certificate in first-aid training from the American Red Cross, Mine Safety and Health Administration, or equivalent training program that can be verified by documentary evidence

g) Contractor must prepare a general plan of action for use in time of emergency.

h) Everyone who goes underground must be trained in the proper inspection, use and limitations of the self-rescue device before being permitted to go underground and at least every three months thereafter

i) Provide fresh air shall be provided in adequate quantities to all underground work areas, as per CAL-OSHA requirements.

j) The roof, face, walls, and ground support system of all underground work areas shall be inspected upon initial entry into the area and frequently thereafter by a competent person

k) All shafts and tunnel openings used as a normal means of access and egress or as the main intake of fresh air for underground workings shall be constructed of noncombustible material or designed with a fire-resistance rating of 1 1/2 hours or more.

l) An audible and visual warning shall be given before starting excavating or conveyor machinery

m) Where hydraulic lines are subject to contact at temperatures above 160o F, insulation or guarding shall be provided

n) Man-cars used to transport workers shall be equipped with seats, railed sides, over-head protection, non-skid floors and entrance gates at the sides of the car

4.47 WARNING SIGNALS

a) The Contractor shall post site access and warning signage, including emergency contact information, in accordance with applicable requirements.

b) Project Employees shall obey all warning signs.

c) Signage shall be maintained in legible condition, and cleaned or replaced as necessary to maintain legibility.

d) All Contractor-installed warning signs, signals and barricades must be removed when the hazard no longer exists

- The Contractor shall monitor conditions to ensure timely and accurate removal of these devices.

4.48 WORK ZONE TRAFFIC CONTROL

a) The Employer shall establish work area protection zones necessary to protect Employees and the public when work is performed in areas where pedestrians or vehicles have access.

b) All Employees in work zones shall wear Class II (for Class I and Class II exposures) or Class III reflectorized garments in accordance with the requirements of the MUTCD.

c) Traffic control shall be established in compliance with the U.S. Department of Transportation Manual on Uniform Traffic Control Devices (MUTCD), State and local traffic control regulations, the WATCH Handbook (where referenced by contract), or other contract-referenced documents/standards.

d) The Employer shall establish Work Area Protection in consideration of the location of the worksite, pedestrian and traffic conditions, and the time of day (daylight or dark).

e) The Employer shall ensure adequate protection to passing vehicles on a roadway by providing a Flagger when barricades, signs and signals may be insufficient.

f) When placing or removing Work Area Protection, the Employee shall:

- Be consistently alert to traffic conditions.
- Face oncoming traffic.
- Wear proper personal protection (e.g. traffic warning vest, hard hat, eye protection).

g) Place the initial warning sign (e.g., Construction Ahead) first and remove last.

h) Work zone sites must be made safe for pedestrians by using:

- Rope or vinyl warning tape.
- Fencing or other barricades.
- Cones and signs.
- Pedestrian crossings (designated and painted).
- Other appropriate means, methods and devices

i) All night work requires adequate illumination to light the work area and warn public vehicular traffic.

j) For night work, the illumination used to light the work area shall be aimed such that it does not create glare for, or blind, the public driving through the work zone.

k) The Employer shall ensure adequate protection to passing vehicles on a roadway by providing a Flagger when barricades, signs and signals may be insufficient.

l) Flagging Operations

- Flagging Operations shall be conducted in accordance with the following unless a more specific standard applies:
  - Flaggers shall be trained in the proper fundamentals of flagging (signaling) traffic before being assigned as Flaggers.
  - The Flagger must be protected and the motorist forewarned by use of advance warning signs and cones.
  - Use cones before the Flaggers position to mark the traffic lane.
  - The use of high visibility orange vests shall be required to all Flaggers.
  - During the hours of darkness the Flaggers shall be outfitted with a reflectorized garment, and the Flagger's position shall be illuminated.
  - To Stop Traffic - The Flagger shall face traffic and hold the stop paddle in a vertical position at arms length.
  - When It Is Safe For Traffic To Proceed - The Flagger shall stand parallel to the traffic movement, and with the slow paddle held in a vertical position at arms length.
  - Flags shall be a minimum of 18" x 18" in size, and orange in color.

m) Bridge Plating

- Trenches, excavations, or other surface openings or significant depressions must be covered with a bridge plate to permit safe and unobstructed flow of traffic.
- Bridging plates must be secured from movement by a holding device(s) such as cleats, angles, bolts, tack welding, etc.
- Bridging plates should be installed to produce a minimum amount of noise.
- Bridging plates must extend a minimum of one foot beyond the edges, with pavement materials feathering the edges for a reasonably smooth transition.
- Advance warning signs shall be posted when steel plates are used in a travel path.
  - Refer to the WATCH Manual (where applicable) for specific requirements.

APPENDIX A – ADVANCE PLANNING SUGGESTIONS FOR CONSTRUCTION WORK

APPENDIX A

ADVANCE PLANNING SUGGESTIONS FOR CONSTRUCTION WORK

Each operation of a construction job should be planned in advance. Such planning is needed at all stages of the project. It should start with the estimators, prior to preparations of bids, and continue throughout the job, with superintendents and foremen doing their share. Advance planning will benefit all aspects of the project – safety, productivity and quality. Construction planning will eliminate some accidents automatically, by creating a well-organized job. But expert planning gives special attention to safety, and thus is highly effective in making the operation safe and efficient.

This Appendix may be used in its entirety or in part for pre-construction, pre-phase, or pre-start (for Subcontractors coming to an existing project). This Appendix may also serve in whole or in part as a component of regular Owner-Contractor meetings.

ADVANCE PLANNING SUGGESTIONS FOR CONSTRUCTION WORK

1. Safe Access and Movement
    - 1.1. Workers
        - 1.1.1. Adequate work areas
        - 1.1.2. Adequate access and egress
        - 1.1.3. Adequate walkways and runways
        - 1.1.4. Adequate ladders, stairways, or elevators
        - 1.1.5. Work areas and passageways clear of rubbish, debris, nails, etc.
        - 1.1.6. Protection for perimeter, floor and roof openings
        - 1.1.7. Adequate illumination
    - 1.2. Vehicles
        - 1.2.1. Adequate site roads.
            - 1.2.1.1. Adequate turning space
            - 1.2.1.2. Adequate parking area
            - 1.2.1.3. Free from excessive mud and dust
        - 1.2.2. Separate materials storage areas and dump areas
        - 1.2.3. Adequate signs, signals, etc., to route vehicles on job
        - 1.2.4. Adequate maintenance and repair of vehicles
    - 1.3. Location of Utilities and Service
        - 1.3.1. Locate saw shops, tool sheds, offices, etc., in a safe, convenient place
        - 1.3.2. Consider location of high-voltage lines
            - 1.3.2.1. Arrange to move, de-energize, or erect barrier, if contact is a possibility
        - 1.3.3. Locate sanitary facilities, drinking water, power, etc., for safety and convenience
2. Schedule Work for Safety
    - 2.1. Have safety materials on job when needed, i.e., personal protective equipment, etc.
    - 2.2. Plan work so that too many trades are not in a small area at the same time
    - 2.3. Plan work considering product usage and the effect on adjacent trades (i.e. – hot tar roofing, solvent based paints, etc.)
    - 2.4. Plan work considering tasks and their effect on adjacent trades (i.e. – sandblasting, grinding, cutting and welding, etc.)
3. Work Procedures

3.1. Materials Handling
- 3.1.1. Methods of elevating and handling materials.
  - 3.1.1.1. Adequate space.
  - 3.1.1.2. Proper auxiliary equipment, i.e., cranes, hoists, elevators, trucks, etc.
- 3.1.2. Methods of loading and unloading.
  - 3.1.2.1. Adequate space.
  - 3.1.2.2. Proper auxiliary equipment, i.e., power shovels, cranes, rigging, fork lifts, etc.
- 3.1.3. Tools and Equipment
  - 3.1.3.1. Repair, maintenance, and care.
  - 3.1.3.2. Inspection.
  - 3.1.3.3. Adequate supplies of the right tools for each part of job.
- 3.1.4. Workers and Foremen
  - 3.1.4.1. Proper job placement.
  - 3.1.4.2. Adequate training and supervision.
  - 3.1.4.3. Adequate manpower.
  - 3.1.4.4. Plans for maintaining interest in safety.
    - 3.1.4.4.1. Safety bulletins, record charts, and posters.
    - 3.1.4.4.2. Recognition for groups or individuals with safety records.
    - 3.1.4.4.3. Investigation and reporting on all accidents.
    - 3.1.4.4.4. Knowledge of safety orders.
    - 3.1.4.4.5. Safety meetings.

(This document is adapted from Title 8, California Code of Regulations, §1938)

APPENDIX B – PERSONAL FALL ARREST SYSTEM GUIDELINES

APPENDIX B

PERSONAL FALL ARREST SYSTEM GUIDLINES

This Appendix is adapted from Federal OSHA §1926 Subpart M Appendix C. Portions have been omitted from the original – refer to §1926 Subpart M Appendix C for the full text. The portions of **1926 Subpart M App C - Personal Fall Arrest Systems - Non-Mandatory Guidelines for Complying with 1926.502(d)** are provided to assist Contractors in complying with fall protection requirements and are not meant to be either a substitute for or a legal interpretation of the occupational safety and health regulations.

Contractors shall refer directly to *Title 8* of the *California Code of Regulations* and the Labor Code for detailed information regarding the regulation's scope, specifications, and exceptions.

Selection and use considerations. The kind of personal fall arrest system selected should match the particular work situation, and any possible free fall distance should be kept to a minimum. Consideration should be given to the particular work environment. For example, the presence of acids, dirt, moisture, oil, grease, etc., and their effect on the system, should be evaluated. Hot or cold environments may also have an adverse effect on the system. Wire rope should not be used where an electrical hazard is anticipated. As required by the standard, the Employer must plan to have means available to promptly rescue an Employee should a fall occur, since the suspended Employee may not be able to reach a work level independently.

Where lanyards, connectors, and lifelines are subject to damage by work operations such as welding, chemical cleaning, and sandblasting, the component should be protected, or other securing systems should be used. The Employer should fully evaluate the work conditions and environment (including seasonal weather changes) before selecting the appropriate personal fall protection system. Once in use, the system's effectiveness should be monitored. In some cases, a program for cleaning and maintenance of the system may be necessary.

Testing considerations. Before purchasing or putting into use a personal fall arrest system, an Employer should obtain from the supplier information about the system based on its performance during testing so that the Employer can know if the system meets this standard. Testing should be done using recognized test methods. This Appendix contains test methods recognized for evaluating the performance of fall arrest systems. Not all systems may need to be individually tested; the performance of some systems may be based on data and calculations derived from testing of similar systems, provided that enough information is available to demonstrate similarity of function and design.

Component compatibility considerations. Ideally, a personal fall arrest system is designed, tested, and supplied as a complete system. However, it is common practice for lanyards, connectors, lifelines, deceleration devices, body belts and body harnesses to be interchanged since some components wear out before others. The Employer and Employee should realize that not all components are interchangeable. For instance, a lanyard should not be connected between a body belt (or harness) and a deceleration device of the self-retracting type since this can result in additional free fall for which the system was not designed. Any substitution or change to a personal fall arrest system should be fully evaluated or tested by a Competent Person to determine that it meets the standard, before the modified system is put in use.

Employee training considerations. Thorough Employee training in the selection and use of personal fall arrest systems is imperative. Employees must be trained in the safe use of the system. This should include the following: application limits; proper anchoring and tie-off techniques; estimation of free fall distance, including determination of deceleration distance, and total fall distance to prevent striking a lower level; methods of use; and inspection and storage of the system. Careless or

improper use of the equipment can result in serious injury or death. Employers and Employees should become familiar with the material in this Appendix , as well as manufacturer's recommendations, before a system is used. Of uppermost importance is the reduction in strength caused by certain tie-offs (such as using knots, tying around sharp edges, etc.) and maximum permitted free fall distance. Also, to be stressed are the importance of inspections prior to use, the limitations of the equipment, and unique conditions at the worksite which may be important in determining the type of system to use.

Instruction considerations. Employers should obtain comprehensive instructions from the supplier as to the system's proper use and application, including, where applicable:

1. The force measured during the sample force test;
2. The maximum elongation measured for lanyards during the force test;
3. The deceleration distance measured for deceleration devices during the force test;
4. Caution statements on critical use limitations;
5. Application limits;
6. Proper hook-up, anchoring and tie-off techniques, including the proper dee-ring or other attachment point to use on the body belt and harness for fall arrest;
7. Proper climbing techniques;
8. Methods of inspection, use, cleaning, and storage; and
9. Specific lifelines which may be used. This information should be provided to Employees during training.

Rescue considerations. As required by §1926.502(d) (20), when personal fall arrest systems are used, the Employer must assure that Employees can be promptly rescued or can rescue themselves should a fall occur. The availability of rescue personnel, ladders or other rescue equipment should be evaluated. In some situations, equipment that allows Employees to rescue themselves after the fall has been arrested may be desirable, such as devices that have descent capability.

Inspection considerations. As required by §1926.502(d) (21), personal fall arrest systems must be regularly inspected. Any component with any significant defect, such as cuts, tears, abrasions, mold, or undue stretching; alterations or additions which might affect its efficiency; damage due to deterioration; contact with fire, acids, or other corrosives; distorted hooks or faulty hook springs; tongues unfitted to the shoulder of buckles; loose or damaged mountings; non-functioning parts; or wearing or internal deterioration in the ropes must be withdrawn from service immediately, and should be tagged or marked as unusable, or destroyed.

Tie-off considerations. One of the most important aspects of personal fall protection systems is fully planning the system before it is put into use. Probably the most overlooked component is planning for suitable anchorage points. Such planning should ideally be done before the structure or building is constructed so that anchorage points can be incorporated during construction for use later for window cleaning or other building maintenance. If properly planned, these anchorage points may be used during construction, as well as afterwards.

Properly planned anchorages should be used if they are available. In some cases, anchorages must be installed immediately prior to use. In such cases, a registered professional Authorized Representative with experience in designing fall protection systems, or another qualified person with appropriate education and experience should design an anchor point to be installed.

In other cases, the Agency recognizes that there will be a need to devise an anchor point from existing structures. Examples of what might be appropriate anchor points are steel members or I-beams if an acceptable strap is available for the connection (do not use a lanyard with a snaphook clipped onto itself); large eye-bolts made of an appropriate grade steel; guardrails or railings if they have been designed for use as an anchor point; or masonry or wood members only if the attachment point is substantial and precautions have been taken to assure that bolts or other connectors will not pull through. A qualified person should be used to evaluate the suitability of these "make shift" anchorages with a focus on proper strength.

Employers and Employees should at all times be aware that the strength of a personal fall arrest system is based on its being attached to an anchoring system which does not reduce the strength of the system (such as a properly dimensioned eye-bolt/snap-hook anchorage). Therefore, if a means of attachment is used that will reduce the strength of the system, that component should be replaced by a stronger one, but one that will also maintain the appropriate maximum arrest force characteristics.

Tie-off using a knot in a rope lanyard or lifeline (at any location) can reduce the lifeline or lanyard strength by 50 percent or more. Therefore, a stronger lanyard or lifeline should be used to compensate for the weakening effect of the knot, or the lanyard length should be reduced (or the tie-off location raised) to minimize free fall distance, or the lanyard or lifeline should be replaced by one which has an appropriately incorporated connector to eliminate the need for a knot.

Tie-off of a rope lanyard or lifeline around an "H" or "I" beam or similar support can reduce its strength as much as 70 percent due to the cutting action of the beam edges. Therefore, use should be made of a webbing lanyard or wire core lifeline around the beam; or the lanyard or lifeline should be protected from the edge; or free fall distance should be greatly minimized.

Tie-off where the line passes over or around rough or sharp surfaces reduces strength drastically. Such a tie-off should be avoided or alternative tie-off rigging should be used. Such alternatives may include use of a snap-hook/dee ring connection, wire rope tie-off, an effective padding of the surfaces, or an abrasion-resistance strap around or over the problem surface.

Horizontal lifelines may, depending on their geometry and angle of sag, be subjected to greater loads than the impact load imposed by an attached component. When the angle of horizontal lifeline sag is less than 30 degrees, the impact force imparted to the lifeline by an attached lanyard is greatly amplified. For example, with a sag angle of 15 degrees, the force amplification is about 2:1 and at 5 degrees sag, it is about 6:1. Depending on the angle of sag, and the line's elasticity, the strength of the horizontal lifeline and the anchorages to which it is attached should be increased a number of times over that of the lanyard. Extreme care should be taken in considering a horizontal lifeline for multiple tie-offs. The reason for this is that in multiple tie-offs to a horizontal lifeline, if one Employee falls, the movement of the falling Employee and the horizontal lifeline during arrest of the fall may cause other Employees to fall also. Horizontal lifeline and anchorage strength should be increased for each additional Employee to be tied off. For these and other reasons, the design of systems using horizontal lifelines must only be done by qualified persons. Testing of installed lifelines and anchors prior to use is recommended.

The strength of an eyebolt is rated along the axis of the bolt and its strength is greatly reduced if the force is applied at an angle to this axis (in the direction of shear). Also, care should be exercised in selecting the proper diameter of the eye to avoid accidental disengagement of snap-hooks not designed to be compatible for the connection.

Vertical lifeline considerations. As required by the standard, each Employee must have a separate lifeline [except Employees engaged in constructing elevator shafts who are permitted to have two Employees on one lifeline] when the lifeline is vertical. The reason for this is that in multiple tie-offs to a single lifeline, if one Employee falls, the movement of the lifeline during the arrest of the fall may pull other Employees' lanyards, causing them to fall as well.

Snap-hook considerations. As required by §1926.502(d) (6), the following connections must be avoided (unless properly designed locking snaphooks are used) because they are conditions that can result in roll-out when a non-locking snaphook is used:
(i) Direct connection of a snaphook to a horizontal lifeline.
(ii) Two (or more) snaphooks connected to one dee-ring.
(iii) Two snaphooks connected to each other.
(iv) A snaphook connected back on its integral lanyard.
(v) A snaphook connected to a webbing loop or webbing lanyard.

(vi) Improper dimensions of the dee-ring connection point in relation to the snaphook dimensions which would allow the snaphook keeper to be depressed by a turning motion of the snaphook. rebar, or other components.

Free fall considerations. The Employer and Employee should at all times be aware that a system's maximum arresting force is evaluated under normal use conditions established by the manufacturer, and in no case using a free fall distance in excess of 6 feet (1.8 m). A few extra feet of free fall can significantly increase the arresting force on the Employee, possibly to the point of causing injury. Because of this, the free fall distance should be kept at a minimum, and, as required by the standard, in no case greater than 6 feet (1.8 m). To help assure this, the tie-off attachment point to the lifeline or anchor should be located at or above the connection point of the fall arrest equipment to belt or harness. (Since otherwise additional free fall distance is added to the length of the connecting means (i.e. lanyard)). Attaching to the working surface will often result in a free fall greater than 6 feet (1.8 m). For instance, if a 6-foot (1.8 m) lanyard is used, the total free fall distance will be the distance from the working level to the body belt (or harness) attachment point plus the 6 feet (1.8 m) of lanyard length. Another important consideration is that the arresting force that the fall system must withstand also goes up with greater distances of free fall, possibly exceeding the strength of the system.

Elongation and deceleration distance considerations. Other factors involved in a proper tie-off are elongation and deceleration distance. During the arresting of a fall, a lanyard will experience a length of stretching or elongation, whereas activation of a deceleration device will result in a certain stopping distance. These distances should be available with the lanyard or device's instructions and must be added to the free fall distance to arrive at the total fall distance before an Employee is fully stopped. The additional stopping distance may be very significant if the lanyard or deceleration device is attached near or at the end of a long lifeline, which may itself add considerable distance due to its own elongation. As required by the standard, sufficient distance to allow for all of these factors must also be maintained between the Employee and obstructions below, to prevent an injury due to impact before the system fully arrests the fall. In addition, a minimum of 12 feet (3.7 m) of lifeline should be allowed below the securing point of a rope grab type deceleration device, and the end terminated to prevent the device from sliding off the lifeline. Alternatively, the lifeline should extend to the ground or the next working level below. These measures are suggested to prevent the worker from inadvertently moving past the end of the lifeline and having the rope grab become disengaged from the lifeline.

Obstruction considerations. The location of the tie-off should also consider the hazard of obstructions in the potential fall path of the Employee. Tie-offs that minimizes the possibilities of exaggerated swinging should be considered. In addition, when a body belt is used, the Employee's body will go through a horizontal position to a jack-knifed position during the arrest of all falls. Thus, obstructions that might interfere with this motion should be avoided or a severe injury could occur.

Other considerations. Because of the design of some personal fall arrest systems, additional considerations may be required for proper tie-off. For example, heavy deceleration devices of the self-retracting type should be secured overhead in order to avoid the weight of the device having to be supported by the Employee. Also, if self-retracting equipment is connected to a horizontal lifeline, the sag in the lifeline should be minimized to prevent the device from sliding down the lifeline to a position that creates a swing hazard during fall arrest. In all cases, manufacturer's instructions should be followed.

APPENDIX C – SAMPLE PRE-PLANNING MATRIX

APPENDIX C

SAMPLE PRE-PLANNING MATRIX

This is provided as a sample to assist the Contractor and its' Subcontractors in the identification of hazards and concerns and related control/mitigation measures. This is not represented or intended to be a complete list of operations and exposures that will be encountered on this project.

OPERATION or EXPOSURE	HAZARD OR CONCERN	CONTROLS / MITIGATION MEASURES	ACTION BY / STATUS / NOTES
Concrete Formwork			
Concrete Pours			
Crane Lifts – Power Lines			
Crane Lifts – Crane Location			
Crane Lifts – Critical Lifts			
Crane Lifts – Ground Conditions			
Cranes - Set-up and Delivery			
Cranes – Certification			
Cranes – Operators			
Excavations			
Exterior Wall Installation			
Fall Protection Anchorages			
General Site Safety			
Hot Work			
Interior Work			
Material Handling & Storage			
Pile Driving / Caissons / Drilled Piles			
Power Lines			
Public Hazards			
Roadway Work Zones			
Site Access			

OPERATION or EXPOSURE	HAZARD OR CONCERN	CONTROLS / MITIGATION MEASURES	ACTION BY / STATUS / NOTES
Structural Frame - Concrete			
Structural Frame – Steel			
Underground Utilities			

APPENDIX D – SEVERE WEATHER GUIDELINES

APPENDIX D

SEVERE WEATHER GUIDELINES

1. Objective: This checklist is intended to be a general guideline of the detailed tasks that construction projects must consider in preparing for a severe weather event. It is not to be considered a complete document for any project due to the changing nature of the project and the unique concerns of each weather event. Each area of the project is to be reviewed to evaluate the work that needs to be accomplished both from this list, as well as its own specific requirements. It is understood that the action plan is for the preparation of all areas under construction.

2. General Requirements
   - 2.1. Document specific stop work time / date.
   - 2.2. Photograph project in detail to substantiate both completed and status of on-going work.
   - 2.3. Photograph work and effort expended for hurricane protection.
   - 2.4. Clean site and buildings from all trash and debris. Service and empty all trash containers.
   - 2.5. Secure dumpsters that remain on site.
   - 2.6. Remove from site or place inside a protecting structure any portable office or storage containers.
   - 2.7. Remove project records and documents and store appropriately.
   - 2.8. Comply with the crane manufacturer's recommendations for high-wind conditions.
   - 2.9. As much as practical, remove from site all conventional mobile cranes. For those that remain, boom down and extend and set the outriggers. Prepare equipment as recommended by the manufacturer.
   - 2.10. Lighter weight equipment should be removed from site and stored appropriately. Heavier equipment should be placed in manner to shield or weight other site materials. Consideration should be given to flood prone areas.

3. Sitework
   - 3.1. Consolidate soil stockpiles. Consider the height of the stockpile according to storage area.
   - 3.2. Coordinate the protection or removal of dewatering operations filtering materials as required.
   - 3.3. Remove screening fabric from chain link fences.

4. Concrete
   - 4.1. Consolidate, bundle, and strap plywood, metal pan forms, scaffolding / shoring materials.
   - 4.2. Evaluate present state of decking in place. Secure with weight of consolidated rebar, or other material, or disassemble as necessary.
   - 4.3. Complete welding of precast façade panels as specified. Secure any panels stored on site.

5. Masonry
   - 5.1. Secure all scaffolding systems with tie-downs and tiebacks. Remove and store scaffold planks appropriately.
   - 5.2. Remove portable mixers from site.
   - 5.3. Consolidate and strap bundle all loose concrete masonry units, cement bags, etc.

6. Metals
   - 6.1. Remove all oxygen, acetylene, and associated metal welding / cutting gasses from site.
   - 6.2. Remove portable welding machines from site.
   - 6.3. Stockpile and bundle all loose material.
   - 6.4. Remove all loose and wind prone materials from elevated decks and floors. Complete welding and anchoring of all structural steel and miscellaneous iron framing that is presently erected. Remove all members that will not be connected as specified by the contract documents.

7. Woods and Plastics
   7.1. Store in a protected area not subject to wind and water infiltration all millwork, cabinetry, lumber, etc. Bundle and consolidate.

8. Thermal and Moisture Protection
   8.1. Remove all roofing and associated materials that are not installed from the roof deck, bundle, and store in protected area.
   8.2. Complete areas of work to a stage that will achieve complete dry-in on building sections that are critical and / or are required to remain protected and operational.

9. Exterior Finish Systems, Doors and Windows
   9.1. Complete the curtain wall and storefront anchoring framing that is presently erected. Remove all members that will not be connected.
   9.2. Re-crate loose glazing and framing and store appropriately.
   9.3. Remove staging platforms, rigging, safety lines, and associated equipment.
   9.4. Store hardware, doors, and frames that are not installed in a protected area not subject to wind and water infiltration.
   9.5. Close and secure all doors that are installed. (No doors should be blocked open).

10. Finishes
    10.1. Consolidate and bundle all loose sheetrock, studs, etc. Store and cover in protected area.
    10.2. Store all paints, cement, ceiling tile, grid, fixtures, carpets, PVC Conduit/Pipe, etc. in rooms that are secure and not subject to water and wind infiltration.

11. Specialties
    11.1. Store all toilet compartments, accessories, fire extinguishers, etc. not presently installed in rooms that are not subject to water and wind infiltration.

12. Furnishings
    12.1. Store all furniture and related furnishings in an area not subject to wind and water infiltration.

13. Hoists and Conveying Systems
    13.1. De-energize personnel hoists and elevators that are not critical to the building function.
    13.2. Confirm sump pits are clean and pumps are operational.
    13.3. Close and secure elevator equipment room doors. Cover electronic devises with plastic sheeting on equipment that is turned off.

14. Mechanical
    14.1. Bundle and consolidate all loose material, piping, boxes, etc. and store appropriately.
    14.2. Confirm all mechanical room doors are closed and secured.
    14.3. De-energize AHU's and associated fan powered distribution units if any are operational.

15. Electrical
    15.1. Bundle and consolidate all conduit and related material and store appropriately.
    15.2. De-energize all non-essential temporary circuits.
    15.3. Review UPS and generators systems, fuel, and circuitry for life safety requirements.
    15.4. Confirm all electrical and telephone rooms are closed and secured.

APPENDIX E – MODEL CONTRACTOR SITE SPECIFIC SAFETY PLAN (SSSP)

APPENDIX E

MODEL CONTRACTOR SITE-SPECIFIC SAFETY PLAN (SSSP)

NOTE: Contractor is Responsible for compliance of SSSP with CAL-OSHA Requirements

ABOUT THIS MODEL PROGRAM

Every Contractor must establish, implement and maintain a written Contractor Site-Specific Safety Plan (SSSP) and a copy must be maintained at each work site. The minimum requirements for establishing, implementing and maintaining an effective written Contractor safety plan are contained in the contract. The Contractor shall comply with the contract and shall complete the model program to detail specific issues relating to the following elements:

Accountability/Responsibility/Key Line Personnel
Statement of Contractor's Safety and Health Policy
Identification of Competent/Qualified Persons
Scope of Work Evaluation
Hazard/Risk/Exposure Assessment
Control Measures/Activity Hazard Analysis
Contractor Periodic Safety Audits/Inspections
Contractor's Weekly Safety Planning – Weekly Look Ahead Plan
Compliance Requirements and Policy
Written Progressive Disciplinary Program
Hazard Correction System
Training and Instruction
Project Site Orientation
Communication System
Recordkeeping
Accident/Exposure Investigation
Emergency Action Plan
Site-Specific Medical Emergency Plan
Written Hazard Communication Program
Written Trenching and Shoring Plan (if applicable)
Written 100% Fall Protection Plan (if applicable)
Other written programs as specified by regulatory agency or contract Requirements
List of Attachments

This model program has been prepared as an aid for use by Contractors and Subcontractors. Subcontractors are responsible for meeting or exceeding the requirements of the Contractor SSSPs if Subcontractor elects to develop a SSSP in addition to their IIPP. This model program was written for a broad spectrum of Contractor employers and it should be modified as appropriate to provide the essential framework required for a Contractor Safety Plan on this project.

Proper use of this model program requires the Project Manager/Superintendent of your firm to carefully review the requirements for each of the SSSP elements found in this model. Complete the appropriate blank spaces and check those items that are applicable to your workplace. Sample forms for hazard assessment and correction, accident/exposure investigation, and worker training and instruction are provided with this model program.

This model program must be maintained by the Contractor's Project Manager in order to be effective.

1. Responsibility/Identification of Key Line Personnel

Contractor:

Address:

Telephone Fax Email

Company Executive responsible for project: Contact No.

Manager/Superintendent: Contact No.

Safety Representative/Manager: Contact No.

Key Foreperson or forepersons: Contact No.

Client Project Management POC: Contact No.

These personnel have the authority and responsibility for implementing the provisions of this program for:

Project Site Location On-site Contact No.

All managers and supervisors are responsible for implementing and maintaining the SSSP in their work areas and for answering worker questions about the SSSP. A copy of this SSSP is available from each manager and supervisor.

2. Statement of Contractor's Safety and Health Policy

Include your company statement here

3. Identification of Competent/Qualified Persons

List/Submit Certificate

4. Scope of Work Evaluation

List Major Activities

5. Hazard/Risk/Exposure Assessment

List Hazards and Exposures here

Major hazards or risks and exposures associated with the scope of work evaluation shall be listed here. Each major activity shall be evaluated and an Activity Hazards Analysis developed.

6. Control Measures/Activity Hazard Analysis

(Provide an Attachment to include Hazard Control Measures and Activity Analysis for Risks Listed in #5)

7. Subcontractor Periodic Safety Inspections/Audits

In addition, periodic inspections to identify and evaluate on-going workplace hazards shall be performed by the following competent persons or observers in the following areas of our workplace:

Competent Person/Observer	Area of Expertise/Responsibility

Periodic inspections are performed according to the following schedule:

_____ (daily, weekly, monthly, etc.)

When we initially established our SSSP;

When new substances, processes, procedures or equipment which present potential new hazards are introduced into our workplace;

When new, previously unidentified hazards are recognized;

When occupational injuries and illnesses occur;

When we hire and/or reassign permanent or intermittent workers to processes, operations, or tasks for which a hazard evaluation has not been previously conducted; and

Whenever workplace conditions warrant an inspection.

Periodic inspections consist of identification and evaluation of workplace hazards utilizing applicable sections of the Contractor's Site-Specific Safety Program or other effective methods to identify and evaluate workplace hazards.

8. Subcontractor Risk Mitigation Three-Week Look-Ahead Planning Submission

The form found in Attachment G can be used to plan risk mitigation strategies and to submit same for review prior to contract progress meetings.

9. Compliance Requirements Policy

Management is responsible for ensuring that all safety and health policies and procedures are clearly communicated and understood by all employees. Managers and supervisors are expected to enforce the rules fairly and uniformly.

All employees are responsible for using safe work practices, for following all directives, policies and procedures, and for assisting in maintaining a safe work environment.

Our system of ensuring that all workers comply with the rules and maintain a safe work environment includes:

Informing workers of the provisions of our SSSP;

Evaluating the safety performance of all workers;

Recognizing employees who perform safe and healthful work practices;

Providing training to workers whose safety performance is deficient;

Disciplining workers for failure to comply with safe and healthful work practices; and

The following practices:

_____
_____
_____

10. Written Progressive Disciplinary Program

(Explain or attach written program)

11. Hazard Correction Policy

Unsafe or unhealthy work conditions; practices or procedures shall be corrected in a timely manner based on the severity of the hazards. Hazards shall be corrected according to the following procedures:

When observed or discovered;

When an imminent hazard exists which cannot be immediately abated without endangering employees or property, we will remove all exposed workers from the area except those necessary to correct the existing condition. Workers necessary to correct the hazardous condition shall be provided with the necessary protection; and

All such actions taken and dates they are completed shall be documented on the appropriate forms.

12. Training and Instruction Policy

All workers, including managers and supervisors, shall have training and instruction on general and job-specific safety and health practices. Training and instruction shall be provided as follows:

When the SSSP is first established;

To all new workers;

To all workers given new job assignments for which training has not previously provided;

Whenever new substances, processes, procedures or equipment are introduced to the workplace and represent a new hazard;

Whenever the employer is made aware of a new or previously unrecognized hazard;

To supervisors to familiarize them with the safety and health hazards to which workers under their immediate direction and control may be exposed; and

To all workers with respect to hazards specific to each employee's job assignment.

Workplace safety and health practices for all locations include, but are not limited to, the following:

Explanation of the employer's SSSP, the SFMTA Safety Standards, emergency action plan and fire prevention plan, and measures for reporting any unsafe conditions, work practices, injuries and when additional instruction is needed.

Use of appropriate clothing, including gloves, footwear, and personal protective equipment.

Information about chemical hazards to which employees could be exposed and other hazard communication program information.

Availability of toilet, hand-washing, and drinking water facilities.

Provisions for medical services and first aid including emergency procedures.

In addition, we provide specific instructions to all workers regarding hazards unique to their job assignment, to the extent that such information was not already covered in other training.

13. Project Site Employees Orientation Program Subjects

We orient our workers about the following checked subjects:

- ❑ Client safety requirements
- ❑ The employer's code of safe practices.
- ❑ Road and highway safety practices

- ❑ Flagging
- ❑ Traffic control
- ❑ Confined spaces.
- ❑ Safe practices for operating any agricultural equipment.
- ❑ Good housekeeping, fire prevention, safe practices for operating any construction equipment.
- ❑ Safe procedures for cleaning, repairing, servicing and adjusting equipment and machinery.
- ❑ Safe access to working areas.
- ❑ Protection from falls.
- ❑ Electrical hazards, including working around high voltage lines.
- ❑ Crane operations.
- ❑ Trenching and excavation work.
- ❑ Proper use of powered tools.
- ❑ Guarding of belts and pulleys, gears and sprockets, and conveyor nip points.
- ❑ Machine, machine parts, and prime movers guarding.
- ❑ Lockout/tagout procedures.
- ❑ Materials handling.
- ❑ Chainsaw and other power tool operation.
- ❑ Unsafe weather conditions.
- ❑ Yarding operations, including skidding, running lines, rigging and communication.
- ❑ Landing and loading areas, including release of rigging, landing layout, moving vehicles and equipment, truck locating, loading and shipping.
- ❑ Fall protection from elevated locations.
- ❑ Use of elevated platforms, including condors and scissor lifts.
- ❑ Driver safety.
- ❑ Traffic safety
- ❑ Slips, falls, and back injuries.
- ❑ Ergonomic hazards, including proper lifting techniques and working on ladders or in a stooped posture for prolonged periods at one time.
- ❑ Personal protective equipment.
- ❑ Respiratory Equipment.
- ❑ Hazardous chemical exposures.
- ❑ Hazard communication.
- ❑ Physical hazards, such as heat stress, noise, and ionizing and non-ionizing radiation.
- ❑ Laboratory safety.
- ❑ Bloodborne pathogens and other biological hazards.
- ❑ Other job-specific hazards, such as _____

14. Employee Communication System and Policy

We recognize that open, two-way communication between management and staff on health and safety issues is essential to an injury-free, productive workplace. The following system of communication is designed to facilitate a continuous flow of safety and health information between management and staff in a form that is readily understandable and consists of one or more of the following checked items:

New worker orientation including a discussion of safety and health policies and procedures.

Review of our SSSP and SFMTA Safety Standards.

Workplace safety and health training programs.

Regular weekly and daily safety meetings.

Effective communication of safety and health concerns between workers and supervisors, including translation where appropriate.

Posted or distributed safety information.

A system for workers to anonymously inform management about workplace hazards.

A labor/management safety and health committee that meets regularly, prepares written records of the safety and health committees meetings, reviews results of the periodic scheduled inspections, reviews investigations of accidents and exposures and makes suggestions to management for the prevention of future incidents, reviews investigations of alleged hazardous conditions, and submits recommendations to assist in the evaluation of employee safety suggestion.

Other:

_____
_____

15. Recordkeeping Policy

We have taken the following steps to document implementation of our SSSP:

Records of hazard assessment inspections, including the persons conducting the inspection, the unsafe conditions and work practices that have been identified and the action taken to correct the identified unsafe conditions and work practices, are recorded on a hazard assessment and correction form

Documentation of safety and health training for each worker, including the worker's name or other identifier, training dates, types of training, and training providers are recorded on a worker training and instruction form.

Other records are retained as required by contract specifications or by local, state or federal OSHA regulations. Where regulations do not specify the length of records retention, a period of three years after project completion will be used.

16. Accident/Exposure Investigations Policy

Procedures for investigating workplace accidents and hazardous substance exposures include:

Responding to the accident scene as soon as possible;
Reporting immediately to the appropriate project point-of-contact

Interviewing injured workers and witnesses;

Examining the workplace for factors associated with the accident/exposure;

Determining the cause of the accident/exposure;

Taking corrective action to prevent the accident/exposure from reoccurring;

Recording the findings and corrective actions taken; and

Post-accident substance abuse testing (as permitted by the PLA).

17. Emergency Action Plan

(Define assembly areas, head count procedure etc.)

18. Site Specific Medical Emergency Plan

(Define/ provide emergency contact numbers, competent first-aid provider locations, etc.)

19. Hazard Communication Program

(Attach written program and MSDSs)

20. Written Trenching and Shoring Plan

(Attach if applicable)

21. Written 100% Fall Protection Plan

(Attach if applicable)

22. Attach other written programs as required by regulation and applicable to this project.

23. List of Attachments

Periodic Safety/Audit Inspection Record
Accident Inspection Report Form
Sample Training Record
Subcontractors Weekly Safety Planning Submission
Site-Specific Safety Plan – Self Assessment Checklist

APPENDIX F – RISK MITIGATION THREE-WEEK LOOK-AHEAD FORM

APPENDIX F

RISK MITIGATION THREE-WEEK LOOK-AHEAD FORM

SFMTA

Risk Mitigation Three-Week Look-Ahead Form

Safety plan for week ending:	_____	**Subcontractor:**	_____
Project/ Location:	_____	**Meeting date:**	_____
Plan Prepared by:	_____	**Dated:**	_____

Next Three Weeks' Scope of Work:

Identified Risks/Exposures/Hazards:

Control Measures:

Additional Activity Hazards Analysis Required:

Subcontractors Mobilizing/Demobilizing:

Audit/Inspections Scheduled:

Competent Person Changes:

Planned Orientation/Training :

Recommendations/Comments/Concerns:

Note: This information should be incorporated into the meeting minutes.

APPENDIX G – ROOT CAUSE ANALYSIS CHART AND INCIDENT INVESTIGATION DATA FORM

APPENDIX G

ROOT CAUSE ANALYSIS CHART AND INCIDENT INVESTIGATION DATA FORM

1. Preparation Phase
Prior to Investigation

- Set Objectives
- Develop Procedures

2. Implementation Phase
4 P's – People, Parts, Position, Paper

- Execute Notification
- Preserve Evidence
- Interview Witnesses
- Gather Evidence (4P's)

3. Research Phase
Prior to RCA phase

- Review Documentation
- Re-Create Scene

4. Analysis Phase
After all information collected

- Identify System Needs
- Identify Corrective Action
- Write Report

5. Corrective Phase
After RCA is completed

- Identify Critical Factors
- Determine Direct Cause

Step 1 – Identify Critical Factor(s)

Critical factors are events, conditions or behaviors that, if eliminated, would have prevented or lessened the severity of the incident.

The analysis portion of the RCA process begins with a review of all information and data collected during the investigation. This data is comprised of both facts and inferences. To identify critical factors, ask the following question: ***"Would the incident have been prevented or would the severity of the outcome been reduced, if this particular factor was not present?"*** For every fact or inference to which the answer is ***"YES"*** an individual root cause analysis, with corrective actions, should be conducted.

Step 2 – Determine Direct Cause(s)

For each critical factor identified, ask the question, ***"Why did this occur?"***
Review all direct cause categories and list each potential direct cause for every critical factor identified in step 1.

At-Risk Behaviors

A. Following Procedures	**B. Use of Tools or Equipment**
A1 Violation of SOPs by individual	B1 Improper use of equipment
A2 Violation of SOPs by group	B2 Improper use of tools
A3 Violation of SOPs by supervisor	B3 Use of defective equipment (aware)
A4 Operation of equipment w/o authority	B4 Use of defective tools (aware)
A5 Improper position of posture for task	B5 Improper placement of tools, equipment or materials
A6 Overexertion of physical activity	B6 Operation of equipment at improper speed
A7 Work or motion at improper speed	B7 Servicing of equipment while in operation
A8 Working in an awkward posture	B8 Wrong tool for the job
A9 Improper lifting	
A10Improper loading	
A11Taking shortcuts	
C. Use of Protective Methods	**D. Inattention/Lack of Awareness**
C1 Lack of hazard awareness	D1 Improper decision making
C2 PPE not used	D2 Distraction by other(s)
C3 Improper use of PPE	D3 Insecure footing/maintain 3-point contact
C4 Use of defective or contaminated PPE	D4 Failure to maintain eyes on path
C5 Inadequate energy control (lockout)	D5 Acts of violence
C6 Equipment or materials not secured	D6 Failure to warn
C7 Disabled guards, warning systems or safety devices	D7 Use of drugs or alcohol
	D8 Routine activity without thought
C8 Removed guards, warning systems or safety devices	D9 Habituated to hazard or warning signs
	D10 Horseplay
C9 PPE not available	D11 Placed self in line-of-fire
E. Protective Systems	**F. Tools, Equipment and Vehicles**
E1 Inadequate guards or protective devices	F1 Defective equipment
E2 Defective guards or protective devices	F2 Inadequate equipment
E3 No guards or protective devices in place	F3 Improperly prepared/maintained equipment
E4 Inadequate PPE	F4 Defective tools
E5 Defective PPE	F5 Inadequate tools for the job
E6 Inadequate warning systems	F6 Improperly prepared tools

Step 2 – Determine Direct Cause(s)

For each critical factor identified, ask the question, ***"Why did this occur?"***
Review all direct cause categories and list each potential direct cause for every critical factor identified in step 1.

At-Risk Behaviors

E7 Defective warning systems E8 Inadequate isolation of process or equipment E9 Inadequate safety devices E10 Defective safety devices	F7 Defective vehicle F8 Inadequate vehicle for purpose used F9 Improperly prepared/equipped vehicle F10 Improperly designed tools/equipment F11 Improper proximity to equipment or vehicle
G. Work Exposures	**H. Workplace Environment**
G1 Fire or explosions G2 Noise G3 Repetitive motion G4 Energized electrical systems G5 Energized mechanical, hydraulic, pneumatic or chemical systems G6 Radiation (ionizing/non-ionizing) G7 Temperature extremes G8 Hazardous chemicals G9 Mechanical hazards G10 Clutter or debris G11 Weather or acts of nature G12 Slippery floors or walkways	H1 Congestion or restricted motion H2 Inadequate ventilation H3 Inadequate illumination H4 Unprotected height H5 Inadequate workplace design controls less than adequate displays less than adequate labels less than adequate conflicting information given creates awkward posture H6 Reduced visibility

Step 3 – Determine Root Cause(s)

For each direct cause, again ask the question, ***"Why did this occur?"***
Review each root cause category to determine all possible root causes.

Personal Factors

1. Physical Capability (7,11,15, 20)	**2. Physical Conditions (1, 2, 5, 15, 20)**
1-1 Vision deficiency 1-2 Hearing deficiency 1-3 Other sensory deficiency 1-4 Reduced respiratory capacity 1-5 Musculoskeletal disorder 1-6 Other permanent/temporary disability 1-7 Inability to sustain body position 1-8 Restricted range of body movement 1-9 Substance sensitivities or allergy 1-10 Inadequate size or strength 1-11 Influenced by medication	2-1 Previous injury or illness 2-2 Fatigue due to workload 2-3 Fatigue due to lack of rest 2-4 Fatigue due to sensory overload 2-5 Exposure to temperature extremes 2-6 Exposure to oxygen deficiencies 2-7 Exposure to atmospheric variations 2-8 Blood sugar deficiency 2-9 Impairment due to drugs or alcohol
3. Mental State (1,3,11,13,15,19,20)	**4. Mental Stress (1,3,7,11,12,13,15)**
3-1 Poor judgment 3-2 Memory failure 3-3 Poor condition or reaction time 3-4 Emotional disturbance 3-5 Fears or phobias 3-6 Low mechanical aptitude 3-7 Low learning aptitude 3-8 Influenced by medication	4-1 Preoccupation with problems 4-2 Frustration 4-3 Confusing directions/demands 4-4 Conflicting directions/demands 4-5 Meaningless or degrading activities 4-6 Emotional overload 4-7 Extreme judgment/decision demands 4-8 Extreme concentration/perception demands

Step 3 – Determine Root Cause(s)

For each direct cause, again ask the question, ***"Why did this occur?"***
Review each root cause category to determine all possible root causes.

	4-9 Extreme boredom
5. Behavior (1,2,3,7,8,13,14,19)	**6. Skill Level (1,2,11,15)**
5-1 Improper performance rewarded / tolerated 5-2 Proper performance is punished 5-3 Improper attempt to save time 5-4 Improper attempt to avoid discomfort 5-5 Improper attempt to gain attention 5-6 Employee perceived haste 5-7 Supervisor implied haste 5-8 Lack of appropriate incentives 5-9 Improper supervisory example 5-10 Inadequate reinforcement of safe behaviors 5-11 Inappropriate peer pressure 5-12 Inadequate performance feedback 5-13 Improper recognition for at risk behavior	6-1 Inadequate assessment of required skill 6-2 Inadequate practice of skill 6-3 Infrequent opportunity to practice skill 6-4 Lack of coaching/training on skill
7. Training/Knowledge (2,3,4,6,7,11,12)	**8. Leadership and Accountability (1,2,3,10,11,13,15)**
7-1 Inadequate knowledge transfer 7-2 Inability to comprehend 7-3 Inadequate instructor qualifications 7-4 Inadequate training equipment 7-5 Misunderstanding training instructions 7-6 Inadequate recall of training received 7-7 Training not reinforced on the job 7-8 Inadequate refresher training provided 7-9 Inadequate design of training program 7-10 Inadequate training objective/goals 7-11 Inadequate new employee training 7-12 Inadequate on-the-job training 7-13 No measurement of training effectiveness 7-14 No training provided 7-15 Need for training not identified 7-16 Training records incorrect / not current 7-17 New process introduced w/o training 7-18 Management decision not to provide training	8-1 Unclear/conflicting reporting relationships 8-2 Unclear/conflicting assignment of responsibility 8-3 Improper/insufficient delegation of authority 8-4 Inadequate accountability system in place 8-5 Inadequate or incorrect performance feedback 8-6 Failure to conduct worksite walkthrough 8-7 Inadequate promotion/enforcement of safety 8-8 Inadequate correction of prior hazard / incident 8-9 Inadequate identification of workplace hazards 8-10 Inadequate management of change system 8-11 Inadequate incident reporting / investigation 8-12 Inadequate or lack of safety meetings 8-13 Inadequate performance measures 8-14 Inadequate matching of qualifications for job 8-15 Lack of supervisory management knowledge 8-16 Inadequate health hazard evaluation
9. Authorized Representative Design (1,3,5,13,14,18)	
9-1 Failure to identify hazards 9-2 Inadequate ergonomic design 9-3 Inadequate technical design 9-4 Inadequate monitoring of construction 9-5 Failure to include H&S in review process 9-6 No independent design review 9-7 Inadequate review of potential failures	

Step 3 – Determine Root Cause(s)

For each direct cause, again ask the question, ***"Why did this occur?"***
Review each root cause category to determine all possible root causes.

9-8 Failure to document change

Job Factors

10. Work Planning and Maintenance (13,17,18)

10-1 Inadequate work planning
10-2 Inadequate preventative maintenance
- assessment of needs
- lubrication/servicing
- adjustment/assembly
- cleaning/resurfacing

10-3 Inadequate repair
- communication of needed repairs
- scheduling of work
- examination of parts
- parts substitution

10-4 Excessive wear and tear
- inadequate planning for use
- extension of service life
- improper loading
- use by untrained personnel
- used for wrong purpose

10-5 Inadequate reference material available
10-6 Inadequate inspection/monitoring
- no documentation
- no accountability for corrections

10-7 Inadequate job placement
- appropriate personnel not identified
- appropriate personnel not available
- appropriate personnel not provided

11. Purchasing (13,17,18)

11-1 Inadequate specs on invoice
11-2 Inadequate research on materials
11-3 Inadequate specs to vendor
11-4 Inadequate mode of shipment
11-5 Improper handling of materials
11-6 Improper storage of materials
11-7 Improper substitution
11-8 Inadequate material packaging
11-9 Exceeded shelf life
11-10 Material hazards not identified
11-11 Inadequate H&S approval process
11-12 Failure to receive MSDS
11-13 Poor communication of hazards

12. Tools and Equipment (1,5,14,18)

12-1 Inadequate assessment of needs
12-2 Inadequate assessment of risks
12-3 Lack of ergonomic considerations
12-4 Inadequate standards/specifications
12-5 Inadequate availability
12-6 Inadequate adjustment/repair
12-7 Inadequate salvage/reclamation
12-8 Failure to replace worn parts
12-9 Poor equipment record history

13. Contractor Selection/Safety (3,12,17)

13-1 No contractor pre-qualifications
13-2 Inadequate pre-qualifications
13-3 Inadequate contractor selection
13-4 Use of non-approved contractor
13-5 Lack of contractor oversight
13-6 Lack of job oversight
13-7 Failure to provide safety training
13-8 Lack of contractor communication
13-9 Failure to specify H&S requirements

14. Rules/Policies/Procedures (1,2,3,13)

14-1 Lack of SOP's
14-2 No accountability for SOP's
14-3 Lack of JHA's
14-4 Inadequate JHA's
14-5 SOP's inconsistent with work processes
14-6 Lack of employee involvement with SOP's
14-7 Unclear definition of corrective actions
14-8 SOP's not accessible, poor SOP

15. Communication (1,2,3,5,7,10,11,13)

15-1 Poor communication between:
- co-workers
- supervisor and employee
- departments/work groups
- work shifts

15-2 Ineffective communication methods
15-3 Poor communication of H&S data
15-4 Standard terminology not used
15-5 Incorrect instructions provided
15-6 Verification techniques not used
15-7 Messages too long/complicated

Step 3 – Determine Root Cause(s)

For each direct cause, again ask the question, ***"Why did this occur?"***
Review each root cause category to determine all possible root causes.

format 14-9 Inadequate implementation of SOP's - contradictory statements - confusing format - no check-off spaces provided - inadequate sequence of steps - confusing instructions - critical steps missing 14-10 Inadequate enforcement of SOP's 14-11 Inadequate monitoring of work 14-12 Inadequate supervisor knowledge 14-13 Inadequate communication of SOP's 14-14 Outdated SOP's / no revision schedule	

Step 4 – Determine System Need(s)

For each root cause category identified, refer to the number in parenthesis, and associate it with Management System deficiencies that contributed to the root cause. Determine if key system elements are in place, if they require updating, or if missing and/or additional elements need to be incorporated in the system.

Management System Elements

1. Leadership	**2. Leadership Development**
1-1 General H&S policy and vision statement established 1-2 Assigned responsibilities for safety / loss control 1-3 Senior and middle management participation 1-4 Established safety management measurement systems 1-5 H&S as an agenda in all meetings 1-6 Internal H&S audits conducted by management 1-7 Individual responsibility for safety assigned 1-8 H&S committees in place and functional 1-9 Production demands never compromise safety 1-10 Adequate H&S management reference materials 1-11 Applicable regulatory requirements identified 1-12 Communication with external H&S experts conducted	2-1 H&S training regularly analyzed 2-2 H&S training provided to new managers 2-3 H&S training provided to senior management 2-4 H&S training for management regularly updated 2-5 Records of leadership training maintained 2-6 Training effectiveness measured / monitored
3. Accountability	**4. Information Management**
3-1 H&S accountability system established 3-2 Accountability system exists in writing 3-3 Roles/expectations exists for all job classes	4-1 H&S information database in place 4-2 Trend analysis conducted 4-3 Trend analysis worked into plan

Step 4 – Determine System Need(s)

For each root cause category identified, refer to the number in parenthesis, and associate it with Management System deficiencies that contributed to the root cause. Determine if key system elements are in place, if they require updating, or if missing and/or additional elements need to be incorporated in the system.

Management System Elements

3-4 Management systems identified 3-5 Regular evaluations conducted 3-6 Consequences in place (negative and positive) 3-7 Annual renewal component established	
5. Hazard Evaluation	**6. Incident Investigation**
5-1 Planned general inspections conducted 5-2 Follow-up system for corrective actions 5-3 All levels of management involved 5-4 Audit report analysis established 5-5 Both conditions and behaviors are audited 5-6 External audit conducted annually 5-7 Pre-use equipment inspections conducted 5-8 JHA's conducted for all jobs 5-9 Process renewal component established	6-1 Written incident investigation system 6-2 Line management participation 6-3 Management review of major incidents 6-4 Remedial action and follow-up 6-5 Near miss reporting and investigation 6-6 Communication system for incidents
7. Behavior Modification	**8. Reinforcement and Recognition**
7-1 At risk behaviors identified 7-2 System for observation and feedback 7-3 Observer training program established 7-4 Management role identified 7-5 Behavior leadership team in place 7-6 Database of behavior data exists 7-7 Action plans developed based on data 7-8 Timely follow-up on corrective actions 7-9 Process renewal component established	8-1 Formal R&R system in place 8-2 System uses upstream H&S measures 8-3 Recognition is person specific 8-4 Recognition is mostly symbolic 8-5 Recognition considers employee input 8-6 Recognition motivates behavior
9. Emergency Preparedness	**10. Incident Analysis**
9-1 Administrative roles established 9-2 Identification of potential emergencies 9-3 Written emergency plan 9-4 Identification of energy control sources 9-5 Emergency response teams trained 9-6 First aid and response equipment available 9-7 Emergency communications established 9-8 Coordination with local agencies 9-9 Evacuation drills conducted 9-9 Training workforce conducted	10-1 Hazard risk assessments conducted 10-2 Tracking and trending of incident data 10-3 RCA always conducted 10-4 Property damage analysis included 10-5 Near miss analysis conducted 10-6 Training for RCA provided
11. Knowledge and Skill Training	**12. Change Management**
11-1 Administration system established 11-2 Training needs analysis / testing of learning 11-3 Instructor qualifications established 11-4 Training systems in place 11-5 Training systems evaluation / follow-up	12-1 Written system in place 12-2 Administrative responsibilities identified 12-3 Communication system established 12-4 Measurement system for effectiveness

Step 4 – Determine System Need(s)

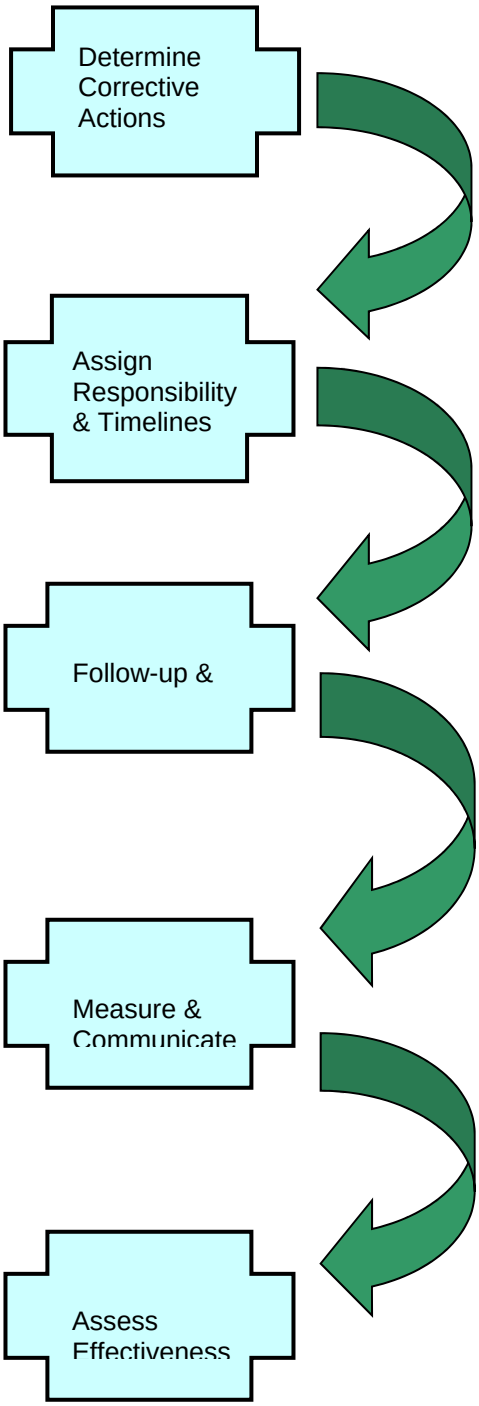
For each root cause category identified, refer to the number in parenthesis, and associate it with Management System deficiencies that contributed to the root cause. Determine if key system elements are in place, if they require updating, or if missing and/or additional elements need to be incorporated in the system.

Management System Elements

11-6 H&S training and task training performed	
13. Communication	**14. Authorized Representative Design**
13-1 Communications reach entire facility 13-2 Process for top-down and bottom-up in place 13-3 Feedback and coaching available 13-4 Training in personal communications 13-5 Task instruction 13-6 Planned personal contacts, e.g. one-on-one 13-7 Audited for effectiveness / timeliness	14-1 Administration roles identified 14-2 Hazard identification conducted 14-3 Risk assessment conducted 14-4 Project review for safety 14-5 H&S analysis conducted 14-6 Operational/work process controls in place
15. Human Resources	**16. Enrollment**
15-1 Job capability requirements established 15-2 Medical pre-placement exam required 15-3 Behavioral interviews carried out 15-4 New hire skill analysis completed 15-5 General orientation / training conducted 15-6 Widespread recruiting / quality candidates 15-7 Pre-employment qualification checks made 15-8 Mentoring systems in place 15-9 Probationary review period established	16-1 Informal enrollment process in place 16-2 Formal enrollment process established 16-3 Enrollment renewal process in place 16-4 Process addresses chronic non enrollers
17. Materials/Services Management	**18. Operation and Maintenance**
17-1 Written policy/procedures established 17-2 Critical processes/parts inspected 17-3 Selection of contractors includes safety 17-4 Management of contractors while on site 17-5 H&S review of incoming materials 17-6 H&S training of contractors 17-7 Communication systems for MSDS's	18-1 Preventative maintenance system in place 18-2 Critical processes/parts inspected 18-3 Pre-use equipment inspections conducted 18-4 Work order system in place 18-5 H&S issue prioritization (24 hours)
19. Health and Hygiene Control	**20. Drug and Alcohol**
19-1 Responsibility defined 19-2 Hazard identification and evaluation 19-3 Hazard control system in place 19-4 Appropriate IH monitoring conducted 19-5 Information and training provided 19-6 Health care education available 19-7 Professional assistance and oversight 19-8 Medical surveillance conducted 19-9 Internal communications established 19-10 Recordkeeping tracked and maintained 19-11 Collaboration established for health and IH	20-1 Policy established and well communicated 20-2 For-cause testing in place 20-3 EAP available 20-4 Random testing in place

Step 5 – Develop Corrective Action(s)

Corrective actions must be designed to address management system needs and deficiencies, in addition to preventing re-occurrence of all root and direct causes.



The Incident Investigation Data Form is to be used in conjunction with the Root Cause Analysis Chart (A) to investigate the following types of incidents:

- Incidents resulting in an OSHA recordable injury or illness
- Incidents resulting in business interruption
- Incidents resulting in process interruption
- Near-miss incidents with potential high-severity consequences.

****

Part A – to be completed as an initial report form

Incident Identification:	Check one: ☐ personal injury ☐ vehicle ☐ environmental ☐ property dmge. ☐ other	Check one if injury: ☐ first aid ☐ recordable ☐ restricted duty ☐ lost time ☐ environmental - minor ☐ environmental - minor ☐ other ☐ not applicable		Check one: ☐ employee ☐ contractor ☐ other
Incident Location:				

Incident Occurred:	Day	Date	Time	Incident Reported:	Date	Time
Time Employee Began Work:				Last Time Off:		

Incident reported to:		Position:	

Person Injured/Involved

Name:		Date of Birth:	
Job Title:		Department:	
Experience at Current Position:		Qualifications for Current Position:	
Hire Date:		Orientation Date:	
Brief Description of Training History			

Describe Incident (in order of occurrence):

Describe Injuries:

Attach/Insert Photos or Other Relevant Information:

Supervisor at Time of Incident:	
Direct Supervisor:	

Parties/Witnesses Involved – add lines if necessary		
	Name, Title	Signature
Employee Involved		
Witness		
Supervisor		

Nature of Injury				**Bodily Location**			
	01 Contusion		07 Heat Stress		01 Head		07 Arm/Elbow
	02 Burns		08 Chemical Exp.		02 Eye		08 Hand/Wrist
	03 Eye		09 Foreign Body		03 Neck/Shoulders		09 Leg/Knee
	04 Strain/Sprain		10 Multiple injury		04 Back		10 Foot/Ankle
	05 Fracture		11 Other (specify)		05 Respiratory		11 Multiple Injury
	06 Laceration				06 Trunk		

Incident Type				**Inflicting Agent – specify in blank space**			
	01 Caught In		08 Struck By		01 Chemical		08 other transport
	02 Fall from Height		09 Fire		02 Hand Tool		09 ground fall
	03 Chemical		10 Environmental		03 Power Tool		10 other
	04 Thermal		11 Noise Induced		04 Manual handling lifting		11 Other (specify)
	05 Slip/Trip/Fall		12 Other (specify)		05 Manual handling pull/push/other		
	06 Electricity				06 Fixed Machinery		
	07 Ergonomic				07 Rig/Equipment		

Description of Investigation
at scene:
at office:

Investigation Team		
	Name, Title	Signature
Led By		
Member		
Member		
Member		
Member		
Member		
Member		
Member		

Direct Causes – from RCA Chart	
Behavior – list all codes	**Condition– list all codes**

Root Causes – from RCA Chart	
Personal Factors	**Job Factors**

Management System Elements – from RCA Chart	

Actions Taken to Prevent Similar Incident (list responsible party and date due)		
Action	**Due Date**	**Responsibility**

Additional Comments:			
Lead Investigator:	Signature	Print Name	Date

APPENDIX H – INCIDENT / NEAR MISS REPORT

APPENDIX H

INCIDENT / NEAR MISS REPORT

Incident/Near Miss Report _____Case

Date and Time: ( )

District Name:

Description (What happened?)

Contractor/ Project Name:

Contributing Factors (Why did the incident happen?)

-

Corrective Measures (How can the incident be prevented in the future?)

-

Reconstruction Photos *Please attach the incident photos prior to submitting.*

PLEASE CHECK ALL THAT APPLY	
Cause of Injury:	☐ *Debris in Eye* ☐ *Electrical* ☐ *Ergonomic* ☐ *Fall* ☐ *Lifting/Carrying* ☐ *Miscellaneous* ☐ *Pinchpoints* ☐ *Slip/Trip* ☐ *Struck By or On* ☐ *Using Tools*
Type of Injury:	☐ *Burn* ☐ *Eye Injury* ☐ *Fracture* ☐ *Laceration* ☐ *Miscellaneous* ☐ *Puncture/Abrasion* ☐ *Sprain/Strain*
Craft Type:	☐ *Carpenter* ☐ *Foreman* ☐ *Ironworker* ☐ *Laborer* ☐ *Mechanic* ☐ *Operator* ☐ *Pipe Fitter* ☐ *Electrician* ☐ *Other (please specify):*
Body Part Injured:	**Length of Employee Service:**
Market Segment:	☐ *Buildings* ☐ *Heavy Civil* ☐ *Power* ☐ *Mining* ☐ *Transportation* ☐ *Oil, Gas, Chemical* ☐ *Water/Waste Water* ☐ *Other (please specify):*
MASTER PRECAUTION CHECKLIST (PLEASE CHECK ALL THAT APPLY)	
People's Positions:	☐ *Alignment* ☐ *Over Exertion* ☐ *Line of Fire* ☐ *Over Reaching* ☐ *Repetition*
Attention to Work:	☐ *Eyes on Task* ☐ *Mind on Task* ☐ *Pace* ☐ *Aware of Surroundings*

Communication: *Coordination*	☐ *Recognize Changes* ☐ *JHA* ☐ *Plan* ☐ *Task*
Using PPE:	☐ *Good Condition* ☐ *In Use* ☐ *Right Type*
Executing Work: *Correct Access*	☐ *Select Right Tool* ☐ *Follow Policies* ☐ *Work Safely* ☐ *Use* ☐ *Use Tool Properly* ☐ *Verify Tool is in Good Condition*
Working Conditions: *Clutter* *Tools/Equipment Are Put Away*	☐ *Guards & Barriers* ☐ *Clean/Clear of* ☐ *Footing* ☐ *Work Plan Design* ☐ *Ambient Conditions* ☐
Other: *specify):*	☐ *Rework* ☐ *Employee Medical Event* ☐ *Other (please*

APPENDIX I – NON-COMPLIANCE ABATEMENT REPORT

APPENDIX I

NON-COMPLIANCE ABATEMENT REPORT

Contractor	**Date identified**	**Description**	**Projected Abatement Date**
Location	**Assigned to**	**Corrective Measures**	**Actual Abatement Dale**
Contractor	**Date identified**	**Description**	**Projected Abatement Date**
Location	**Assigned to**	**Corrective Measures**	**Actual Abatement Dale**
Contractor	**Date identified**	**Description**	**Projected Abatement Date**
Location	**Assigned to**	**Corrective Measures**	**Actual Abatement Dale**
Contractor	**Date identified**	**Description**	**Projected Abatement Date**
Location	**Assigned to**	**Corrective Measures**	**Actual Abatement Dale**

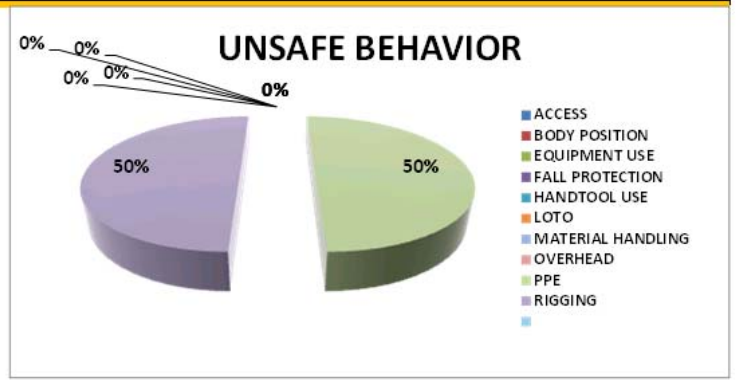
APPENDIX J – MONTHLY NON-COMPLIANCE SUMMARY

APPENDIX J
MONTHLY NON-COMPLIANCE SUMMARY

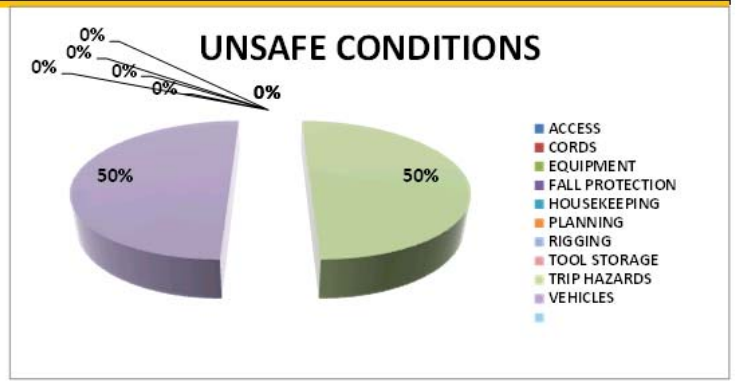
MONTHLY NON-COMPLIANCE SUMMARY

Central Subway Project **MONTH ENDING** **4/1/2012 0:00**

UNSAFE BEHAVIOR	COUNT	%
ACCESS	0	0%
BODY POSITION	0	0%
EQUIPMENT USE	0	0%
FALL PROTECTION	0	0%
HANDTOOL USE	0	0%
LOTO	0	0%
MATERIAL HANDLING	0	0%
OVERHEAD	0	0%
PPE	1	50%
RIGGING	1	50%



UNSAFE CONDITIONS	COUNT	%
ACCESS	0	0%
CORDS	0	0%
EQUIPMENT	0	0%
FALL PROTECTION	0	0%
HOUSEKEEPING	0	0%
PLANNING	0	0%
RIGGING	0	0%
TOOL STORAGE	0	0%
TRIP HAZARDS	1	50%
VEHICLES	1	50%



UNSAFE ACTS

ACCESS:

BODY POSITION:

EQUIPMENT USE:

FALL PROTECTION:

HANDTOOL USE:

LOTO:

MATERIAL HANDLING:

OVERHEAD:

PPE:

RIGGING:

APPENDIX K – SITE SAFETY INSPECTION CHECKLIST

APPENDIX K
SITE SAFETY INSPECTION LIST

Contractor: Contract #.:_____
Project Site
Location:_____

Person in Charge:_____
_____

Date:_____Time:_____

Person(s) making inspection:_____

Project Title:_____

_____

A = Adequate B = Inadequate

ITEMS INSPECTED	A	B	N/A	REMARKS
1. **PROGRAM ADMINISTRATION**				
a. Posting required CAL-OSHA information and other Project Site warning posters.				
b. Do you have safety meetings?				
c. Do you have job safety training, including first aid training?				
d. Are there medical service and first aid equipment, stretchers and emergency vehicles available?				
e. Are Project Site injury records being kept?				
f. Are emergency telephone numbers, such as police department, fire department, doctor, hospital, ambulance, posted?				
2. **HOUSEKEEPING AND SANITATION**				
a. General neatness of working areas.				

ITEMS INSPECTED	A	B	N/A	REMARKS
b. Regular disposal of waste and trash.				
c. Passageways and walkways clear.				
d. Adequate lighting.				
e. Projecting nails removed.				
f. Oil and grease removed.				
g. Waste containers provided and used.				
h. Sanitary facilities adequate and clean.				
i. Drinking water tested and approved.				
j. Adequate supply of water.				
k. Disposable drinking cups.				
3. **FIRE PREVENTION**				
a. Fire instructions to personnel.				
b. Fire extinguishers identified, checked, lighted.				
c. Phone number of fire department posted.				
d. Hydrants clear, access to public thoroughfare open.				
e. Good housekeeping.				
f. “No Smoking” posted and enforced where needed.				
g. Fire brigades.				
4. **ELECTRICAL INSTALLATIONS**				
a. Adequate wiring, well insulated.				
b. Fuses provided.				
c. Fire hazards checked.				

ITEMS INSPECTED	A	B	N/A	REMARKS
d. Electrical dangers posted.				
e. Proper fire extinguishers provided.				
f. Are terminal boxes equipped with required covers? Are covers used?				
5. **HAND TOOLS**				
a. Proper tool being used for each job.				
b. Neat storage, safe carrying.				
c. Inspection and maintenance.				
d. Damaged tools repaired or replaced promptly. Are employee's tools inspected and repaired?				
6. **POWER TOOLS**				
a. Good housekeeping where tools are used.				
b. Tools and cords in good condition.				
c. Proper grounding.				
d. All mechanical safeguards in use.				
e. Tools neatly stored when not in use.				
f. Right tool being used for the job at hand.				
g. Wiring properly installed.				
7. **POWDER-ACTUATED TOOLS**				
a. Local laws and ordinances complied with.				
b. All operators qualified.				
c. Tools and charges protected from unauthorized use.				

ITEMS INSPECTED	A	B	N/A	REMARKS
d. Competent instruction and supervision.				
e. Tools checked and in good working order.				
f. Tools not used on any but recommended materials.				
g. Safety goggles or face shields.				
h. Flying hazard checked by backing up, removal of personnel, or use of captive stud tool.				
8. **LADDERS**				
a. Ladders inspected and in good condition?				
b. Properly secured to prevent slipping, sliding or falling?				
c. Do side rails extend 36" above top of landing?				
d. Rungs or cleats not over 12" on center.				
e. Stepladders fully open when in use.				
f. Metal ladders not used around electrical hazards.				
g. Proper maintenance and storage.				
h. Are ladders painted?				
i. Are safety shoes in use?				
9. **SCAFFOLDING**				
a. Is erection properly supervised?				
b. Will all structural members meet the safety factor?				
c. Are all connections secure?				
d. Is scaffold tied into structure?				
e. Are working areas free of debris, snow, ice, grease?				

ITEMS INSPECTED	A	B	N/A	REMARKS
f. Are foot sills and mud sills provided?				
g. Are workers protected from falling objects?				
h. Is the scaffold plumb and square with cross-bracing?				
i. Are guardrails, intermediate rails, & toe boards in place?				
j. Is scaffold equipment in good working order?				
k. Are ropes and cables in good condition?				
10. **HOISTS, CRANES AND DERRICKS**				
a. Inspect cables and sheaves.				
b. Check slings and chains, hooks and eyes.				
c. Equipment fully supported.				
d. Outriggers used if needed.				
e. Power lines inactivated, removed or at safe distance.				
f. Proper loading for capacity at lifting radius.				
g. All equipment properly lubricated and maintained.				
h. Signal person where needed.				
i. Signals understood and observed.				
j. Are inspection and maintenance logs maintained?				
11. **HEAVY EQUIPMENT**				
a. Regular inspection and maintenance.				
b. Lubrication and repair of moving parts.				
c. Lights, brakes, warning signals operative.				

ITEMS INSPECTED	A	B	N/A	REMARKS
d. Wheels chocked when necessary.				
e. Haul roads well maintained and laid out properly.				
f. Protection when equipment is not in use.				
g. Are shut-off devices on hose lines in case of hose failure?				
h. Are noise arresters in use?				
12. **MOTOR VEHICLES**				
a. Regular inspection and maintenance.				
b. Qualified operators.				
c. Local and state vehicles laws and regulations observed.				
d. Brakes, lights, warning devices operative.				
e. Weight limits and load sizes controlled.				
f. Personnel carried in a safe manner - seated.				
g. Is all glass in good condition?				
h. Are back-up signals provided?				
i. Are fire extinguishers installed where required?				
13. **GARAGES AND REPAIR SHOPS**				
a. Fire hazards.				
b. Dispensing of fuels and lubricants.				
c. Good housekeeping.				
d. Lighting.				
e. Carbon monoxide dangers.				

ITEMS INSPECTED	A	B	N/A	REMARKS
f. Are all fuels and lubricants in proper containers?				
g. Proper ventilation.				
h. Proper grounding and bonding.				
14. BARRICADES				
a. Flood openings planked over or barricaded.				
b. Roadways and sidewalks effectively protected.				
c. Adequate lighting provided.				
d. Traffic controlled.				
15. **HANDLING AND STORAGE OF MATERIALS**				
a. Are materials properly stored or stacked?				
b. Are passageways clear?				
c. Stacks on firm footings, not too high.				
d. Proper number of personnel for each operation.				
e. Is personnel lifting loads correctly?				
f. Are materials protected from weather conditions?				
g. Protection against falling into hoppers and bins.				
h. Is dust protection observed?				
i. Extinguishers and other fire protection.				
j. Is traffic controlled in the storage area?				
16. **EXCAVATION AND SHORING**				
a. Are adjacent structures properly shored?				
b. Is shoring and sheathing used for soil and depth?				

ITEMS INSPECTED	A	B	N/A	REMARKS
c. Are roads and sidewalks supported and protected?				
d. Is material stored too close to excavations?				
e. Is excavation barricaded and lighting provided?				
f. Is equipment a safe distance from edge of excavation?				
g. Are ladders provided where needed?				
h. Are equipment ramps adequate?				
i. Is job supervision adequate?				
17. **DEMOLITION**				
a. Are operations planned ahead?				
b. Is there shoring of adjacent structures?				
c. Are material chutes used?				
d. Is there sidewalk and other public protection?				
e. Clear operating space for trucks and other vehicles.				
f. Adequate access ladders or stairs.				
18. **PILE DRIVING**				
a. Are there proper storage procedures?				
b. Is unloading only by properly instructed personnel?				
c. Are steam lines, slings, etc. in operating condition?				
d. Are pile driving rigs properly supported?				
e. Are ladders on frames?				
f. Are cofferdams maintained and inspected?				

ITEMS INSPECTED	A	B	N/A	REMARKS
g. Is adequate pumping available?				
h. Is personnel protection adequate?				
19. **EXPLOSIVES**				
a. Qualified operators and supervision.				
b. Proper transport vehicles.				
c. Local laws and regulations observed.				
d. Storage magazines constructed per regulations or as recommended.				
e. Cases opened properly.				
f. "No Smoking" posted and observed where appropriate.				
g. Detonators tested before each shot.				
h. All personnel familiar with signals, and signals properly used at all times.				
i. Inspection after each shot.				
j. Proper protection and accounting for all explosives at all times.				
k. Proper disposition of wrappings, waste and scrap.				
l. Advise residents nearby of blasting cap danger, and inspect potential damage points.				
m. Check radio frequency hazards.				
20. **FLAMMABLE GASSES AND LIQUIDS**				
a. All containers clearly identified.				
b. Proper storage practices observed.				

ITEMS INSPECTED	A	B	N/A	REMARKS
c. Fire hazards checked.				
d. Proper storage temperatures and protection.				
e. Proper types and number of extinguishers nearby.				
f. Carts for moving cylinders.				
21. MASONRY				
a. Proper scaffolding.				
b. Masonry saws properly equipped, dust protection provided.				
c. Safe hoisting equipment.				
22. **HIGHWAY CONSTRUCTION**				
a. Laws and ordinances observed.				
b. Competent flaggers properly dressed, instructed and posted.				
c. Adequate warning signs and markers.				
d. Equipment not blocking right-of-way.				
e. Traffic control through construction site.				
f. Adequate marking and maintenance of detours.				
g. Dust control.				
h. Adequate lighting.				
23. **PERSONAL PROTECTIVE EQUIPMENT**				
a. Eye protection.				
b. Face shields.				
c. Respirators and masks.				

ITEMS INSPECTED	A	B	N/A	REMARKS
d. Helmets and hoods.				
e. Head protection.				
f. Gloves, aprons, and sleeves: rubber or plastic, designed to afford protection from alkalis and acids; electrician's rubber gloves with protectors.				
g. Respirators for harmful dust, asbestos, sand blasting, welding (lead paint and galvanized zinc or cadmium). Adequate ventilation when painting or applying epoxy resins. All safe practices in spraying as to materials using vacuum to clean up. When there is a question about injurious exposure, notify superior immediately who in turn shall arrange for atmospheric samples to be taken.				
24. **TUNNELS and UNDERGROUND CONSTRUCTION**				
a. At least one designated person shall be on duty outside whenever anyone is working underground.				
b. Check-in/Check-Out being used properly				
c. First-aid kits maintained and inspected weekly				
d. Safe means of access maintaned				
e. Ventilation measued and recorded				
f. Gas being tested and recorded				
g. Communications maintained with underground				
h. Phones for underground communication tested				
i. Rescue team(s) 8-hour refresher training every three months.				
i. Self rescuer training every three months and recorded				

ITEMS INSPECTED	A	B	N/A	REMARKS
j. PPE being worn as required				
k. Change house maintained in a clean and sanitary condition.				
l Drinking water supplied				
m. No volatile solvents (below 100o F. flash point) such as gasoline underground.				
n. Audible and visual warning be given before starting excavating or conveyor machinery.				
o. Power transmission equipment, hazardous moving parts, and conveyors guarded				
p. Employees provided with cap lampms or flashlights				
q Combustible framing sheds, storage buildings or change houses not located within 100 feet of any tunnel opening, shaft house, hoisting engine house or ventilating fan house				

24. UNSAFE ACTS AND/OR PRACTICES OBSERVED (list)

25. OTHER

APPENDIX L – MONTHLY MAN-HOUR AND INJURY REPORT

APPENDIX L

MONTHLY MAN-HOUR AND INJURY REPORT

East Side CSO Tunnel Project **Project Safety**

Project Safety Record - Contract

Through Montlth End (Add Month And Year)

SAFETY GOALS

Reportable Frequency:	0
Recordable Frequency:	0

JOB TO DATE	BIH	Subs	Total Project	Rate*	
OSHA Recordable Accidents	0	0	0	#DIV/0!	**
Job Transfer or Restricted Duty Cases	0	0	0	#DIV/0!	
Lost Time Cases	0	0	0	#DIV/0!	
Man Hours Worked Through M/E (Add Mmont day and yeear)	0	0	0		

YEAR TO DATE (Month ,Day, Year to Month, Day, Year)	BIH	Subs	Total Project	Rate*	
OSHA Recordable Accidents	0	0	0	#DIV/0!	**
Job Transfer or Restricted Duty Cases	0	0	0	#DIV/0!	
Lost Time Cases	0	0	0	#DIV/0!	
Man Hours Worked Through M/E (Add Month and Year)	0	0	0		

* Rate is calculated based on number of incidents divided by total number of man hours worked multiplied by 200,000 man hours.
OSHA Recordable Accidents

Need to Find Out what your appropriates NAICS # is and the la latest average , for the above line

Accident Log			Days Since Last Recordable Accident: (Through September 26, 2010)		#VALUE!
Date of Accident	Employee Name	Craft	Description of Accident	Treatment Required	Accident Classification
0/0/0000	Example	Laborer Apprentice	Ran 3,500 psi pressure washer over right foot, causing small laceration.	Doctor prescribed antibiotic medication	REC
0/00/0000	Example (Sub- Name)	Laborer	Wind gust blew over fence panel and struck employee in the back. Bone chip.	Doctor prescribed pain reliever	RDC